NACA

RESEARCH MEMORANDUM

STATIC STABILITY AND CONTROL CHARACTERISTICS OF A

TRIANGULAR WING AND CANARD CONFIGURATION

AT MACH NUMBERS FROM 2.58 TO 3.53

By C. Ernest Hedstrom, James R. Blackaby,
and Victor L. Peterson

Ames Aeronautical Laboratory
Moffett Field, Calif.

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SUMMARY

Results of an investigation of the static longitudinal stability
and control characteristics of a canard airplane configuration are pre-
sented without analysis for the Mach number range of 2.58 to 3.53. The
configuration consisted of a triangular wing and a triangular canard,
both of aspect ratio 2.0, a low-aspect-ratio vertical tail, and a fine-
ness ratio 12.5 Sears-Haack body. The hinge line of the canard was in
the extended wing chord plane, 1.21 wing mean aerodynamic chords ahead
of the reference center of moments. The ratio of the area of the exposed
canard panels to the total area of the wing was 6.9 percent. Data are
presented for various combinations of the body, canard, wing, and verti-
cal tail at 0° and 5° sideslip for an angle-of-attack range of -10°
to +15°. The canard deflection angles ranged from 0° to +20°.

INTRODUCTION

The possible gains to be realized at supersonic speeds in the form
of reduced trim drag and increased maneuverability by the use of canards
rather than conventional tail-aft controls have resulted in increased
interest in these arrangements. Therefore, an extensive research program
aimed at determining the static longitudinal and directional character-
istics of a number of canard configurations has been undertaken by the
NACA.

As a part of the program, tests were conducted on a canard configura-
tion to determine its static stability and control characteristics in the
Mach number range of 2.58 to 3.53. The configuration consisted of a tri-
angular wing and triangular canard, both of aspect ratio 2.0, a Sears-
Haack body of fineness ratio 12.5, and a low-aspect-ratio vertical tail.

This report presents without analysis the aerodynamic characteristics of the complete configuration and its component parts. The static stability and control characteristics of this and similar configurations in the Mach number range of 0.70 to 2.22 are given in references 1, 2, 3, and 4.

NOTATION

a.c.   aerodynamic center determined at $C_L = 0$, percent $\bar{c}$

b   wing span, ft

$\bar{c}$ mean aerodynamic chord of wing, ft

$\bar{c}_c$ mean aerodynamic chord of canard, ft

c_c canard root chord, ft

C_D drag coefficient, $\dfrac{\text{drag}}{qS}$

C_{D_O} drag coefficient at zero lift

C_L lift coefficient, $\dfrac{\text{lift}}{qS}$

C_{L_α} lift-curve slope taken through zero angle of attack, per deg

C_l rolling-moment coefficient, $\dfrac{\text{rolling moment}}{qSb}$

C_{l_s} rolling-moment coefficient about stability axis, $C_l \cos \alpha + C_n \sin \alpha$

C_m pitching-moment coefficient, $\dfrac{\text{pitching moment}}{qS\bar{c}}$, referred to the projection of the 0.21 $\bar{c}$ point on the fuselage reference line

C_n yawing-moment coefficient, $\dfrac{\text{yawing moment}}{qSb}$, referred to the projection of the 0.21 $\bar{c}$ point on the fuselage reference line

C_{n_s} yawing-moment coefficient about stability axis, $C_n \cos \alpha - C_l \sin \alpha$

C_Y side-force coefficient, $\dfrac{\text{side force}}{qS}$

$\dfrac{\Delta C_{l_s}}{\beta}$ difference between rolling-moment coefficients about stability axis at 5° and 0° sideslip divided by 5°, per deg

$\dfrac{\Delta C_{n_s}}{\beta}$ difference between yawing-moment coefficients about stability axis at 5° and 0° sideslip divided by 5°, per deg

$\dfrac{\Delta C_Y}{\beta}$ difference between side-force coefficients at 5° and 0° sideslip divided by 5°, per deg

C_{h_c} canard hinge-moment coefficient, $\dfrac{\text{canard hinge moment}}{q S_c (c_c/2)}$, referred to the projection of the $0.35\,\bar{c}_c$ point on the fuselage reference line

C_{Z_c} force coefficient normal to the canard, $\dfrac{\text{canard normal force}}{qS}$

$\left(\dfrac{L}{D}\right)_{max}$ maximum lift-drag ratio

M free-stream Mach number

q free-stream dynamic pressure, lb/sq ft

S wing area, formed by extending the leading and trailing edges to the plane of symmetry, sq ft

S_c exposed canard area, sq ft

α angle of attack of wing root chord, deg

β sideslip angle measured between the relative wind and vertical plane of symmetry, deg

δ angle of deflection of the canard with respect to the extended wing chord plane, positive when trailing edge is down, deg

Configurations are denoted by the following letters used in combination:

B body

C canard

V vertical tail

W wing

APPARATUS AND MODEL

Test Facility

The experimental data were obtained in the 8- by 7-foot supersonic test section of the Ames Unitary Plan Wind Tunnel. This wind tunnel is capable of continuous variation of nominal Mach number from 2.5 to 3.5 and of stagnation pressure from 2 to 28 pounds per square inch absolute. A more detailed description of the wind tunnel may be found in reference 5.

Description of Model and Balances

The sting-mounted model (figs. 1(a) and (b)) consisted of an aspect ratio 2.0 triangular wing, an aspect ratio 2.0 all-movable triangular canard, and a low-aspect-ratio vertical tail all mounted on a fineness ratio 12.5 Sears-Haack body. A dimensional sketch of the configuration is shown in figure 1(c). The wing and vertical tail had NACA 0003-63 sections streamwise and the constant thickness canard, detailed in figure 1(d), had beveled leading and trailing edges. The canard, which was pivoted about the 0.35 canard mean aerodynamic chord, was mounted in the extended wing chord plane 1.21 wing mean aerodynamic chords ahead of the reference center of moments (0.21 $\bar{c}$). The exposed area of the canard panels was 6.9 percent of the total area of the wing, while the total area was 12.9 percent of the total area of the wing. The wing, canard, and vertical tail were of solid steel construction to minimize aeroelastic effects. The surfaces were polished to give a smooth surface and were further treated to prevent corrosion.

The fuselage was cut off as shown in figure 1(c) to accommodate the sting and the six-component strain-gage balance which measured forces and moments on the entire configuration. Canard normal forces and hinge moments were obtained from a two-component strain-gage balance mounted in the nose of the fuselage. The canard, wing, and vertical tail were removable, enabling data to be taken which would permit an evaluation of the effect of each of these components on the stability of the model.

TEST AND PROCEDURES

Range of Test Variables

The tests were conducted at Mach numbers of 2.58, 3.06, and 3.53 with a constant Reynolds number of 2.5 million per foot. Data were obtained for the body alone and for various combinations of the body and

the wing, canard, and vertical tail. The majority of the tests were made with the model at a constant angle of sideslip of 0° or 5° and with canard deflections from 0° to 20° while angle of attack was varied from -10° to $+15^\circ$. In addition, tests of the complete model with a canard deflection of 0° were made at each of the test Mach numbers with angle of attack constant at approximately 0° and 10° while sideslip angle was varied from -2° to $+10^\circ$. Table I is a summary of the configurations investigated.

Reduction of Data

The data presented herein have been reduced to standard NACA coefficient form. The pitching-moment coefficients were referred to the 0.21 point of the wing mean aerodynamic chord. This location was the same as that chosen in reference 1. The canard hinge moments were computed about a hinge line located at the 0.35 point of the canard mean aerodynamic chord. Transition was not fixed in the present tests because the large wire size required at the highest Mach number would have had excessive drag. Factors which affect the accuracy of the results are discussed in the following paragraphs.

Stream angle variations.- Surveys of the stream characteristics for the 8- by 7-foot supersonic test section of the Ames Unitary Plan Wind Tunnel showed that some stream curvature existed in both the pitch and sideslip planes. For the pitch plane a stream angle, which was less than 0.21° throughout the Mach number range, was found to exist in the vicinity of the model. In the sideslip plane the stream angle was less than 0.07°. The data presented herein have been corrected for these stream angles.

Buoyancy corrections.- The static-pressure variations in the test section of the wind tunnel were also determined during the stream survey. The longitudinal-buoyancy corrections to the drag of this model due to the static-pressure variations have been included in all the drag data presented. For the complete model, these corrections amounted to less than 1.3 percent of the total drag.

Support interference.- The effects of model support interference on the aerodynamic characteristics were considered to consist primarily of a change in the pressure at the base of the model. However, the drag data presented herein contain no base drag component since the base pressure was measured and the drag was adjusted to correspond to a base pressure equal to the free-stream static pressure.

RESULTS

The results are presented in this report without analysis in order to expedite publication. Table I, which includes model configurations and test variables, serves as an index to tables II through VI in which all of the experimental data are tabulated. Selected portions of the data are presented in figures 2 through 7.

Figure 2 shows the lift, drag, and pitching-moment characteristics with the canard on and deflected, and with the canard off, for the three test Mach numbers. Variation of canard normal-force and hinge-moment coefficients as a function of angle of attack at constant canard deflection angles are presented in figure 3. Summarized in figure 4 are the maximum lift-drag ratios, lift-curve slopes, minimum drag coefficients, and aerodynamic centers as a function of Mach number with the canard at zero deflection and with the canard off. In figure 4 the curves shown in the Mach number range of 0.70 through 2.22 were obtained from reference 1.

Figure 5 shows the effect of configuration changes on the lateral and directional characteristics (rolling-moment, side-force, and yawing-moment coefficients) as a function of angle of attack at constant side-slip angles. The effects of canard deflection on the lateral and directional characteristics are presented in figure 6 as a function of angle of attack at constant angles of sideslip. Summarized in figure 7 are $\Delta C_{l_s}/\beta$, $\Delta C_Y/\beta$, and $\Delta C_{n_s}/\beta$ as functions of Mach number at constant angles of attack of $0°$ and $10°$ with the canard on at zero deflection and with the canard off.

Ames Aeronautical Laboratory
    National Advisory Committee for Aeronautics
        Moffett Field, Calif., Mar. 5, 1958

REFERENCES

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5. Huntsberger, Ralph F., and Parsons, John F.: The Design of Large
   High Speed Wind Tunnels. NACA paper presented at the Fourth
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TABLE I.- CONFIGURATIONS INVESTIGATED AND INDEX TO TABULATED DATA

Configuration	δ, deg	β, deg	Tabulated data, table no.
BVWC	0	0 and 5	II(a), III(a)
BVWC	2.6	0	II(b)
BVWC	4.6	0	II(c)
BVWC	10.0	0 and 5	II(d), III(b)
BVWC	19.4	0 and 5	II(e), III(c)
BVWC	0	variable	IV(a), IV(b)
BVW	0	0 and 5	II(f), III(d)
BWC	0	0 and 5	II(g), III(e)
BWC	10.0	5	III(f)
BWC	19.9	0	III(g)
BW	0	0 and 5	II(h), III(h)
BVC	0	0 and 5	V(a), VI(a)
BVC	2.5	0	V(b)
BVC	4.8	0	V(c)
BVC	10.2	0 and 5	V(d), VI(b)
BVC	20.0	0 and 5	V(e), VI(c)
BV	0	0 and 5	V(f), VI(d)
BC	0	0 and 5	V(g), VI(e)
BC	10.0	0 and 5	V(h), VI(f)
BC	20.0	0 and 5	V(i), VI(g)
B	0	0	V(j)

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0°$
(a) BVWC, $\delta = 0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	00.0	-.297	.0674	.0344	-4.40	-.002	.0001	.0001	-.0235	.0895
	-6.6	00.0	-.188	.0333	.0233	-5.63	-.002	.0001	.0000	-.0148	.0555
	-4.6	00.0	-.132	.0222	.0172	-5.93	-.002	.0001	-.0001	-.0101	.0393
	-2.6	00.0	-.075	.0150	.0105	-4.97	-.002	.0001	-.0001	-.0054	.0208
	-0.5	00.0	-.017	.0119	.0029	-1.40	-.001	.0002	-.0002	-.0007	.0021
	1.4	00.0	.040	.0125	-.0049	3.21	-.001	.0002	-.0003	.0038	-.0158
	3.5	00.0	.098	.0173	-.0117	5.70	-.001	.0002	-.0003	.0088	-.0350
	7.6	00.0	.214	.0394	-.0240	5.43	-.002	.0002	-.0002	.0183	-.0707
	11.7	00.0	.324	.0776	-.0350	4.18	-.003	.0002	-.0003	.0269	-.1036
	14.4	00.0	.395	.1118	-.0415	3.54	-.003	.0002	-.0001	.0323	-.1257
3.05	-10.7	00.0	-.258	.0609	.0249	-4.23	-.003	.0000	.0005	-.0206	.0781
	-6.6	00.0	-.162	.0306	.0170	-5.30	-.002	.0000	.0002	-.0131	.0490
	-4.6	00.0	-.114	.0210	.0124	-5.44	-.002	.0000	.0002	-.0089	.0332
	-2.6	00.0	-.064	.0145	.0077	-4.42	-.003	.0000	.0001	-.0048	.0183
	-0.5	00.0	-.014	.0117	.0023	-1.19	-.002	.0000	.0000	-.0007	.0025
	1.4	00.0	.034	.0121	-.0029	2.82	-.002	.0001	.0000	.0035	-.0140
	3.4	00.0	.083	.0164	-.0077	5.06	-.001	.0001	-.0001	.0080	-.0312
	7.6	00.0	.182	.0355	-.0166	5.14	-.002	.0001	-.0001	.0163	-.0640
	11.6	00.0	.281	.0688	-.0250	4.08	-.003	.0000	-.0001	.0236	-.0898
	14.3	00.0	.345	.0994	-.0298	3.47	-.003	.0000	-.0002	.0286	-.1100
3.53	-10.7	00.0	-.223	.0566	.0175	-3.94	-.001	.0000	.0002	-.0186	.0690
	-6.6	00.0	-.139	.0298	.0118	-4.68	-.001	.0000	.0001	-.0115	.0420
	-4.6	00.0	-.096	.0211	.0086	-4.52	-.001	.0001	.0001	-.0080	.0290
	-2.6	00.0	-.052	.0156	.0055	-3.35	-.001	.0001	.0000	-.0043	.0156
	-0.6	00.0	-.010	.0131	.0019	-0.77	-.001	.0001	.0000	-.0006	.0022
	1.4	00.0	.032	.0135	-.0020	2.40	-.001	.0001	.0000	.0032	-.0131
	3.4	00.0	.075	.0172	-.0053	4.38	.000	.0001	-.0001	.0070	-.0272
	7.5	00.0	.162	.0336	-.0114	4.82	-.001	.0001	.0000	.0145	-.0543
	11.5	00.0	.251	.0637	-.0175	3.95	-.001	.0001	-.0001	.0216	-.0813
	14.2	00.0	.311	.0916	-.0213	3.40	-.001	.0001	-.0001	.0257	-.0980

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT β = 0° - Continued

(b) BVWC. δ = 2.6°

M	α, deg	β, deg	C_L	C_D	c_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	00.0	-.289	.0656	.0411	-4.41	-.001	.0002	-.0001	-.0189	.0745
	-6.6	00.0	-.180	.0321	.0304	-5.60	.000	.0001	-.0002	-.0100	.0393
	-4.6	00.0	-.123	.0214	.0241	-5.74	.000	.0002	-.0003	-.0051	.0203
	-2.5	00.0	-.066	.0146	.0172	-4.52	.000	.0001	-.0002	-.0004	.0017
	-0.5	00.0	-.010	.0123	.0096	-0.79	.000	.0002	-.0003	.0039	-.0165
	1.4	00.0	.047	.0132	.0024	3.59	.000	.0002	-.0004		
	3.5	00.0	.105	.0185	-.0044	5.67	.001	.0003	-.0005		
	7.6	00.0	.221	.0417	-.0172	5.31	.000	.0002	-.0004		
	11.6	00.0	.332	.0812	-.0287	4.09	-.001	.0003	-.0004		
	14.4	00.0	.402	.1157	-.0349	3.48	-.001	.0002	-.0003		
3.05	-10.7	00.0	-.248	.0591	.0312	-4.19	-.002	.0000	.0004	-.0162	.0627
	-6.6	00.0	-.153	.0296	.0234	-5.17	-.001	.0000	.0001	-.0082	.0320
	-4.6	00.0	-.105	.0206	.0190	-5.09	-.001	.0000	.0001	-.0041	.0156
	-2.5	00.0	-.055	.0147	.0140	-3.74	-.002	.0000	.0000	-.0001	.0006
	-0.5	00.0	-.006	.0126	.0085	-0.50	.000	.0000	-.0001	.0038	-.0152
	1.5	00.0	.042	.0136	.0034	3.10	.000	.0001	-.0002		
	7.6	00.0	.191	.0377	-.0106	5.07	-.001	.0001	-.0002		
	11.6	00.0	.288	.0721	-.0190	4.00	-.001	.0001	-.0002		
	14.3	00.0	.352	.1029	-.0233	3.43	-.001	.0001	-.0003		
3.53	-10.7	00.0	-.218	.0558	.0239	-3.91	-.001	.0000	.0001	-.0141	.0551
	-6.6	00.0	-.135	.0294	.0181	-4.58	-.001	.0001	.0000	-.0073	.0282
	-4.6	00.0	-.090	.0208	.0152	-4.32	.000	.0001	-.0002	-.0034	.0133
	-2.6	00.0	-.047	.0159	.0118	-2.94	.000	.0001	-.0001	.0000	-.0009
	-0.6	00.0	-.005	.0139	.0080	-0.34	.000	.0001	-.0002	.0037	-.0151
	1.4	00.0	.038	.0145	.0042	2.63	.000	.0002	-.0003		
	3.4	00.0	.080	.0182	.0009	4.40	.001	.0002	-.0003		
	7.5	00.0	.168	.0358	-.0054	4.70	.001	.0002	-.0003		
	11.6	00.0	.256	.0665	-.0110	3.85	.000	.0001	-.0003		
	14.2	00.0	.316	.0948	-.0148	3.33	.000	.0001	-.0003		

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0°$ - Continued

(c) BVWC, $\delta = 4.6°$

M	α, deg	β, deg	c_L	c_D	c_m	L/D	c_Y	c_{l_s}	c_{n_s}	c_{Z_c}	c_{h_c}
2.58	-10.7	00.0	-.286	.0643	.0466	-4.45	-.002	.0002	.0000	-.0150	.0627
	-6.6	00.0	-.176	.0311	.0361	-5.67	-.001	.0002	-.0001	-.0057	.0249
	-4.6	00.0	-.121	.0211	.0298	-5.74	-.002	.0002	-.0001	-.0011	.0058
	-2.6	00.0	-.064	.0150	.0223	-4.27	-.001	.0002	-.0002	.0031	-.0096
	-0.5	00.0	-.008	.0123	.0149	-0.62	.000	.0002	-.0002	.0080	-.0292
	1.5	00.0	.050	.0139	.0072	3.59	-.001	.0003	-.0003	.0130	-.0487
	3.5	00.0	.108	.0193	-.0004	5.59	.000	.0003	-.0004	.0176	-.0653
	7.6	00.0	.223	.0427	-.0128	5.22	-.001	.0003	-.0005	.0265	-.0993
	11.7	00.0	.333	.0825	-.0242	4.04	-.002	.0003	-.0004	.0348	-.1324
	14.4	00.0	.402	.1164	-.0307	3.45	-.003	.0003	-.0004	.0400	-.1532
3.05	-10.6	00.0	-.244	.0584	.0365	-4.18	-.002	.0001	.0003	-.0124	.0521
	-6.6	00.0	-.149	.0300	.0285	-4.96	-.001	.0001	.0001	-.0043	.0192
	-4.6	00.0	-.101	.0211	.0240	-4.78	-.001	.0001	.0001	-.0003	.0033
	-2.5	00.0	-.052	.0153	.0188	-3.42	-.001	.0000	.0000	.0034	-.0110
	-0.5	00.0	-.005	.0135	.0136	-0.37	-.001	.0001	.0000	.0075	-.0268
	1.5	00.0	.045	.0148	.0079	3.08	.000	.0001	-.0002	.0118	-.0430
	3.5	00.0	.094	.0193	.0028	4.86	-.001	.0002	-.0001	.0159	-.0578
	7.5	00.0	.193	.0395	-.0069	4.90	.000	.0001	-.0003	.0236	-.0866
	11.6	00.0	.290	.0739	-.0149	3.93	-.001	.0001	-.0003	.0314	-.1167
	14.3	00.0	.352	.1041	-.0191	3.38	-.002	.0001	-.0004	.0362	-.1361
3.53	-10.7	00.0	-.219	.0549	.0288	-4.00	.000	.0000	.0000	-.0109	.0443
	-6.6	00.0	-.131	.0282	.0228	-4.64	-.001	.0000	.0000	-.0033	.0137
	-4.6	00.0	-.090	.0203	.0198	-4.45	-.001	.0000	.0000	-.0001	.0019
	-2.5	00.0	-.048	.0155	.0162	-3.10	.000	.0000	-.0002	.0036	-.0133
	-0.6	00.0	-.005	.0134	.0119	-0.35	.000	.0000	-.0002	.0073	-.0265
	1.4	00.0	.037	.0146	.0084	2.52	.000	.0002	-.0002	.0109	-.0397
	3.4	00.0	.079	.0183	.0050	4.34	.000	.0002	-.0002	.0145	-.0529
	7.5	00.0	.168	.0360	-.0021	4.68	-.001	.0001	-.0002	.0214	-.0778
	11.5	00.0	.254	.0657	-.0077	3.87	.000	.0001	-.0003	.0288	-.1060
	14.2	00.0	.315	.0949	-.0108	3.32	-.001	.0001	-.0003	.0338	-.1256

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0^{\circ}$ - Continued

(d) BVWC, $\delta = 10.0^{\circ}$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	00.0	-.280	.0630	.0619	-4.45	.000	.0001	-.0001	-.0046	.0254
	- 6.6	00.0	-.172	.0323	.0506	-5.30	.000	.0001	-.0002	.0042	-.0107
	- 4.6	00.0	-.115	.0222	.0435	-5.19	.000	.0001	-.0003	.0086	-.0278
	- 2.5	00.0	-.061	.0165	.0363	-3.67	.000	.0001	-.0003	.0132	-.0452
	- 0.5	00.0	-.006	.0151	.0280	-0.39	.000	.0002	-.0003	.0176	-.0623
	1.5	00.0	.051	.0168	.0189	3.07	.000	.0002	-.0004	.0221	-.0791
	3.5	00.0	.105	.0225	.0104	4.68	.001	.0002	-.0005	.0263	-.0949
	7.6	00.0	.223	.0470	-.0022	4.75	.000	.0003	-.0005	.0347	-.1290
	11.7	00.0	.333	.0871	-.0139	3.82	-.001	.0001	-.0005	.0430	-.1619
	14.4	00.0	.400	.1213	-.0211	3.30	-.002	.0002	-.0006	.0481	-.1830
3.05	-10.7	00.0	-.240	.0566	.0506	-4.25	-.001	.0000	.0002	-.0027	.0195
	- 6.6	00.0	-.145	.0294	.0419	-4.92	-.001	.0000	.0001	.0050	-.0124
	- 4.5	00.0	-.096	.0209	.0372	-4.61	-.001	-.0001	.0001	.0086	-.0261
	- 2.5	00.0	-.049	.0166	.0317	-2.96	.000	.0000	.0000	.0125	-.0411
	- 0.5	00.0	-.003	.0151	.0258	-0.20	.000	.0000	-.0001	.0166	-.0567
	1.4	00.0	.046	.0166	.0194	2.75	.000	.0001	-.0001	.0191	-.0657
	3.5	00.0	.095	.0212	.0128	4.49	.000	.0001	-.0003	.0241	-.0845
	7.5	00.0	.196	.0428	.0039	4.57	.000	.0001	-.0003	.0320	-.1163
	11.6	00.0	.290	.0776	-.0043	3.74	.000	.0000	-.0004	.0396	-.1478
	14.4	00.0	.351	.1084	-.0081	3.24	-.002	.0000	-.0003	.0448	-.1684
3.53	-10.7	00.0	-.209	.0544	.0425	-3.84	-.001	.0000	.0000	-.0014	.0148
	- 6.6	00.0	-.123	.0292	.0359	-4.23	-.001	.0000	.0000	.0054	-.0129
	- 4.6	00.0	-.081	.0216	.0320	-3.73	.000	.0000	-.0001	.0086	-.0248
	- 2.5	00.0	-.041	.0176	.0280	-2.36	.000	.0000	.0000	.0121	-.0381
	- 0.5	00.0	.001	.0162	.0238	0.09	.001	.0001	-.0001	.0152	-.0500
	1.4	00.0	.043	.0173	.0195	2.49	.001	.0002	-.0003	.0192	-.0654
	3.4	00.0	.085	.0216	.0150	3.95	.000	.0001	-.0001	.0228	-.0787
	7.5	00.0	.173	.0400	.0090	4.31	.001	.0001	-.0002	.0301	-.1065
	11.5	00.0	.261	.0715	.0037	3.64	.000	.0000	-.0004	.0376	-.1366
	14.3	00.0	.317	.0998	.0005	3.18	.000	.0001	-.0004	.0427	-.1595

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0°$ - Continued

(e) BVWC, $\delta = 19.4°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.7	00.0	-.266	.0656	.0840	- 4.05	-.001	.0001	-.0001	.0124	-.0314
	- 6.6	00.0	-.158	.0366	.0707	- 4.32	-.001	.0001	-.0002	.0202	-.0659
	- 4.6	00.0	-.103	.0282	.0628	- 3.66	.000	.0001	-.0004	.0238	-.0809
	- 2.5	00.0	-.050	.0238	.0548	- 2.10	-.001	.0001	-.0003	.0278	-.0981
	- 0.5	00.0	.004	.0228	.0456	0.16	-.001	.0002	-.0003	.0319	-.1157
	1.5	00.0	.056	.0256	.0354	2.19	-.001	.0003	-.0004	.0361	-.1341
	3.5	00.0	.109	.0313	.0252	3.47	-.001	.0003	-.0005	.0402	-.1525
	7.6	00.0	.225	.0571	.0126	3.93	-.001	.0003	-.0006	.0485	-.1878
	11.7	00.0	.329	.0974	.0010	3.38	-.002	.0002	-.0009	.0569	-.2253
	14.4	00.0	.394	.1323	-.0051	2.98	-.002	.0001	-.0007	.0629	-.2559
3.05	- 10.6	00.0	-.226	.0591	.0702	- 3.83	-.002	.0000	.0002	.0131	-.0296
	- 6.5	00.0	-.132	.0336	.0603	- 3.92	-.001	.0000	.0001	.0194	-.0576
	- 4.5	00.0	-.084	.0266	.0545	- 3.14	-.002	.0000	.0001	.0230	-.0741
	- 2.5	00.0	-.038	.0229	.0485	- 1.64	-.002	.0000	.0001	.0264	-.0890
	- 0.4	00.0	.011	.0223	.0418	0.47	-.002	.0001	-.0001	.0301	-.1057
	1.5	00.0	.053	.0248	.0349	2.13	-.002	.0001	.0000	.0341	-.1233
	3.5	00.0	.100	.0301	.0281	3.33	-.001	.0001	-.0002	.0382	-.1409
	7.6	00.0	.199	.0526	.0192	3.78	-.001	.0001	-.0004	.0462	-.1757
	11.6	00.0	.288	.0878	.0133	3.28	-.001	.0000	-.0005	.0547	-.2153
	14.4	00.0	.347	.1197	.0093	2.90	-.002	.0000	-.0006	.0608	-.2461
3.53	- 10.6	00.0	-.194	.0542	.0603	- 3.59	-.002	-.0001	.0001	.0135	-.0282
	- 6.6	00.0	-.112	.0323	.0528	- 3.48	-.002	.0001	-.0001	.0193	-.0544
	- 4.5	00.0	-.070	.0254	.0487	- 2.75	-.001	.0001	-.0002	.0224	-.0673
	- 2.5	00.0	-.028	.0228	.0441	- 1.23	-.002	.0001	.0000	.0257	-.0825
	- 0.5	00.0	.013	.0222	.0394	0.60	.000	.0002	-.0002	.0292	-.0974
	1.4	00.0	.052	.0243	.0343	2.16	-.001	.0002	.0000	.0330	-.1140
	3.4	00.0	.092	.0290	.0301	3.18	-.001	.0002	-.0001	.0368	-.1309
	7.5	00.0	.179	.0501	.0247	3.58	-.001	.0002	-.0002	.0449	-.1667
	11.6	00.0	.260	.0824	.0216	3.16	-.002	.0001	-.0001	.0531	-.2065
	14.3	00.0	.315	.1111	.0194	2.83	-.002	.0002	-.0004	.0594	-.2383

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0^\circ$ - Continued

(f) BVW

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	00.0	-.278	.0621	.0691	-4.48	-.001	.0003	-.0002		
	-6.4	00.0	-.176	.0302	.0451	-5.82	-.000	.0003	-.0003		
	-4.4	00.0	-.123	.0199	.0320	-6.19	.000	.0002	-.0003		
	-2.4	00.0	-.070	.0138	.0180	-5.09	.001	.0003	-.0004		
	-0.4	00.0	-.015	.0109	.0039	-1.38	.001	.0003	-.0005		
	1.6	00.0	.041	.0118	-.0102	3.44	.001	.0003	-.0006		
	3.6	00.0	.095	.0166	-.0243	5.68	.000	.0004	-.0004		
	7.7	00.0	.202	.0374	-.0505	5.40	.000	.0004	-.0003		
	11.7	00.0	.306	.0728	-.0739	4.20	.000	.0003	-.0002		
	14.5	00.0	.374	.1052	-.0873	3.55	-.001	.0004	-.0001		
3.05	-10.5	00.0	-.239	.0552	.0549	-4.33	-.001	.0001	.0001		
	-6.4	00.0	-.150	.0277	.0359	-5.41	-.001	.0001	-.0001		
	-4.4	00.0	-.104	.0191	.0252	-5.44	.000	.0002	-.0001		
	-2.4	00.0	-.059	.0137	.0144	-4.30	.000	.0001	-.0001		
	-0.4	00.0	-.012	.0112	.0031	-1.04	.000	.0002	-.0002		
	1.6	00.0	.034	.0120	-.0083	2.81	.000	.0001	-.0003		
	3.6	00.0	.080	.0160	-.0192	5.03	.000	.0002	-.0002		
	7.7	00.0	.172	.0334	-.0400	5.13	.001	.0002	-.0003		
	11.7	00.0	.264	.0647	-.0592	4.08	.000	.0001	-.0002		
	14.4	00.0	.326	.0937	-.0713	3.48	-.001	.0002	.0000		
3.53	-10.5	00.0	-.208	.0507	.0450	-4.11	-.001	.0002	-.0001		
	-6.4	00.0	-.127	.0263	.0289	-4.84	.001	.0001	-.0002		
	-4.4	00.0	-.087	.0182	.0203	-4.79	.000	.0002	-.0002		
	-2.4	00.0	-.048	.0139	.0117	-3.41	.000	.0002	-.0002		
	-0.4	00.0	-.007	.0117	.0024	-0.63	.001	.0002	-.0003		
	1.5	00.0	.032	.0124	-.0064	2.62	.000	.0003	-.0002		
	3.5	00.0	.072	.0160	-.0156	4.48	.001	.0003	-.0002		
	7.6	00.0	.153	.0315	-.0324	4.86	.000	.0004	-.0001		
	11.6	00.0	.235	.0599	-.0485	3.92	.001	.0003	-.0002		
	14.4	00.0	.294	.0863	-.0598	3.40	.000	.0002	-.0001		

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT β = 0° - Continued

(g) BWC, δ = 0°

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	00.0	-.294	.0650	.0331	-4.52	-.002	-.0001	.0005	-.0235	.0908
	-6.6	00.0	-.183	.0311	.0217	-5.89	-.002	.0000	.0005	-.0148	.0567
	-4.5	00.0	-.127	.0200	.0156	-6.36	-.002	.0000	.0005	-.0100	.0383
	-2.5	00.0	-.070	.0131	.0093	-5.31	-.001	.0000	.0002	-.0053	.0199
	-0.5	00.0	-.011	.0103	.0013	-1.03	-.002	.0000	.0003	-.0005	.0008
	1.5	00.0	.046	.0113	-.0062	4.06	-.001	.0001	.0001	.0040	-.0171
	3.5	00.0	.104	.0164	-.0126	6.33	-.002	.0001	.0003	.0091	-.0367
	7.6	00.0	.219	.0389	-.0251	5.62	-.001	.0002	.0002	.0185	-.0732
	11.7	00.0	.328	.0774	-.0358	4.23	-.002	.0002	.0000	.0273	-.1073
	14.4	00.0	.399	.1121	-.0425	3.56	-.003	.0002	.0000	.0327	-.1289
3.05	-10.6	00.0	-.254	.0601	.0239	-4.22	-.003	-.0001	.0005	-.0207	.0779
	-6.5	00.0	-.156	.0301	.0154	-5.20	-.001	.0000	.0003	-.0129	.0478
	-4.5	00.0	-.107	.0208	.0107	-5.17	-.001	-.0001	.0002	-.0088	.0323
	-2.5	00.0	-.058	.0145	.0062	-4.00	-.001	.0000	.0003	-.0047	.0165
	-0.4	00.0	-.009	.0118	.0010	-0.77	-.001	.0000	.0002	-.0006	.0018
	1.5	00.0	.040	.0125	-.0047	3.24	-.001	.0000	.0001	.0036	-.0154
	3.5	00.0	.089	.0170	-.0092	5.25	-.001	.0000	.0000	.0077	-.0300
	7.6	00.0	.187	.0364	-.0178	5.15	-.001	.0001	.0001	.0157	-.0613
	11.6	00.0	.282	.0691	-.0259	4.08	-.002	.0001	.0001	.0239	-.0930
	14.4	00.0	.348	.1003	-.0305	3.47	-.003	.0001	.0001	.0290	-.1134
3.53	-10.6	00.0	-.220	.0543	.0169	-4.06	-.001	-.0001	.0003	-.0186	.0692
	-6.6	00.0	-.133	.0282	.0111	-4.72	-.001	.0000	.0003	-.0117	.0434
	-4.6	00.0	-.089	.0199	.0078	-4.50	.000	.0000	.0001	-.0081	.0294
	-2.5	00.0	-.047	.0145	.0045	-3.24	.000	.0000	.0001	-.0040	.0140
	-0.5	00.0	-.003	.0122	.0009	-0.27	-.001	.0000	.0002	-.0003	.0005
	1.5	00.0	.039	.0130	-.0027	2.96	-.001	.0001	.0001	.0034	-.0140
	3.5	00.0	.081	.0173	-.0061	4.68	-.001	.0002	.0001	.0071	-.0275
	7.5	00.0	.167	.0341	-.0121	4.89	.000	.0002	.0001	.0146	-.0555
	11.6	00.0	.253	.0637	-.0174	3.97	-.001	.0002	.0001	.0219	-.0841
	14.3	00.0	.310	.0913	-.0214	3.40	-.001	.0002	-.0001	.0266	-.1035

TABLE II.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta = 0°$ - Concluded

(h) BW

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	0 0.0	-.278	.0607	.0672	-4.58	-.002	.0000	.0003		
	- 6.4	0 0.0	-.173	.0290	.0436	-5.95	-.001	.0000	.0003		
	- 4.4	0 0.0	-.120	.0188	.0305	-6.39	-.001	.0000	.0003		
	- 2.4	0 0.0	-.065	.0127	.0167	-5.13	-.001	.0000	.0003		
	- 0.4	0 0.0	-.010	.0095	.0022	-1.04	-.001	.0000	.0002		
	1.6	0 0.0	.044	.0109	-.0118	4.07	.000	.0001	.0002		
	3.6	0 0.0	.099	.0156	-.0259	6.35	-.001	.0001	.0002		
	7.7	0 0.0	.203	.0359	-.0514	5.67	-.001	.0002	.0003		
	11.7	0 0.0	.307	.0714	-.0751	4.31	-.002	.0003	.0004		
	14.5	0 0.0	.374	.1039	-.0882	3.60	-.002	.0002	.0005		
3.05	- 10.5	0 0.0	-.238	.0545	.0541	-4.37	-.002	.0001	.0002		
	- 6.4	0 0.0	-.147	.0266	.0347	-5.54	-.001	.0000	.0002		
	- 4.4	0 0.0	-.100	.0178	.0236	-5.65	-.002	.0000	.0003		
	- 2.4	0 0.0	-.055	.0122	.0132	-4.55	-.002	.0000	.0002		
	- 0.3	0 0.0	-.008	.0100	.0017	-0.82	-.001	.0000	.0002		
	1.6	0 0.0	.038	.0109	-.0094	3.47	-.001	.0000	.0002		
	3.6	0 0.0	.083	.0149	-.0206	5.61	-.001	.0000	.0001		
	7.7	0 0.0	.174	.0325	-.0409	5.37	-.001	.0001	.0002		
	14.4	0 0.0	.327	.0922	-.0723	3.54	-.002	.0001	.0003		
3.53	- 10.5	0 0.0	-.209	.0516	.0438	-4.04	-.002	.0000	.0002		
	- 6.4	0 0.0	-.129	.0270	.0282	-4.78	-.002	.0000	.0003		
	- 4.4	0 0.0	-.088	.0186	.0196	-4.73	-.001	.0000	.0002		
	- 2.4	0 0.0	-.048	.0135	.0107	-3.53	-.003	.0000	.0005		
	- 0.4	0 0.0	-.008	.0113	.0017	-0.68	.000	.0001	.0001		
	1.6	0 0.0	.033	.0122	-.0075	2.67	-.001	.0001	.0002		
	3.6	0 0.0	.073	.0159	-.0165	4.61	-.001	.0002	.0002		
	7.6	0 0.0	.152	.0310	-.0331	4.90	-.001	.0002	.0003		
	11.6	0 0.0	.233	.0584	-.0489	4.00	-.001	.0002	.0003		
	14.4	0 0.0	.290	.0847	-.0599	3.42	-.001	.0002	.0004		

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$

(a) BVWC, $\delta = 0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	4.9	-.296	.0684	.0345	-4.33	-.055	-.0041	.0143	-.0230	.0884
	-6.6	4.9	-.185	.0338	.0231	-5.48	-.047	-.0039	.0115	-.0144	.0552
	-4.6	4.9	-.129	.0229	.0171	-5.64	-.044	-.0042	.0102	-.0098	.0382
	-2.6	4.9	-.072	.0158	.0107	-4.56	-.041	-.0044	.0091	-.0049	.0191
	-0.5	4.9	-.014	.0130	.0035	-1.06	-.038	-.0045	.0078	-.0002	.0004
	1.4	4.9	.039	.0135	-.0038	2.92	-.036	-.0047	.0068	.0041	-.0172
	3.5	4.9	.097	.0183	-.0101	5.28	-.035	-.0052	.0061	.0089	-.0359
	7.6	4.9	.214	.0406	-.0226	5.26	-.034	-.0067	.0047	.0186	-.0731
	11.6	5.0	.323	.0784	-.0333	4.12	-.034	-.0078	.0032	.0269	-.1049
	13.5	5.0	.371	.1007	-.0382	3.69	-.035	-.0085	.0026	.0306	-.1195
3.05	-10.6	4.9	-.256	.0606	.0259	-4.22	-.051	-.0034	.0116	-.0202	.0765
	-6.6	4.9	-.159	.0307	.0175	-5.18	-.045	-.0037	.0092	-.0125	.0469
	-4.6	4.9	-.112	.0211	.0129	-5.29	-.042	-.0040	.0080	-.0086	.0327
	-2.5	4.9	-.061	.0151	.0082	-4.04	-.039	-.0040	.0070	-.0044	.0161
	-0.5	4.9	-.012	.0127	.0030	-0.98	-.037	-.0041	.0058	-.0003	.0004
	1.4	4.9	.032	.0128	-.0024	2.48	-.035	-.0042	.0049	.0036	-.0147
	3.5	4.9	.083	.0168	-.0067	4.91	-.034	-.0044	.0042	.0080	-.0311
	7.5	4.9	.184	.0364	-.0157	5.06	-.033	-.0057	.0029	.0162	-.0621
	11.6	4.9	.281	.0692	-.0239	4.05	-.032	-.0071	.0012	.0239	-.0920
	13.4	5.0	.324	.0890	-.0275	3.64	-.033	-.0078	.0007	.0271	-.1056
3.53	-10.7	5.0	-.224	.0555	.0184	-4.04	-.049	-.0019	.0099	-.0184	.0690
	-6.6	5.0	-.137	.0292	.0123	-4.69	-.043	-.0026	.0076	-.0116	.0430
	-4.6	5.0	-.096	.0208	.0096	-4.62	-.040	-.0030	.0067	-.0078	.0283
	-2.6	5.0	-.054	.0155	.0063	-3.45	-.038	-.0034	.0058	-.0039	.0135
	-0.5	5.0	-.011	.0127	.0025	-0.84	-.037	-.0036	.0050	-.0003	.0005
	1.4	5.0	.031	.0134	-.0009	2.31	-.035	-.0038	.0041	.0032	-.0126
	3.4	5.0	.075	.0169	-.0044	4.43	-.034	-.0042	.0035	.0073	-.0272
	7.5	5.0	.163	.0337	-.0103	4.82	-.033	-.0055	.0023	.0148	-.0561
	11.5	5.0	.249	.0636	-.0160	3.92	-.031	-.0071	.0006	.0218	-.0829
	13.4	5.1	.293	.0822	-.0194	3.56	-.032	-.0079	.0000	.0249	-.0948

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5^\circ$ - Continued

(b) BVWC, $\delta = 10.0^\circ$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.7	4.9	-.282	.0646	.0633	- 4.37	-.056	-.0053	.0131	-.0038	.0227
	- 6.6	4.9	-.171	.0329	.0512	- 5.18	-.047	-.0054	.0110	.0049	-.0129
	- 4.6	4.9	-.116	.0233	.0449	- 4.99	-.043	-.0055	.0096	.0093	-.0300
	- 2.5	4.9	-.061	.0181	.0377	- 3.37	-.041	-.0057	.0083	.0138	-.0472
	- 0.5	4.9	-.007	.0164	.0298	- 0.40	-.037	-.0058	.0067	.0182	-.0643
	1.4	4.9	.048	.0180	.0216	2.65	-.036	-.0061	.0056	.0223	-.0800
	3.5	4.9	.105	.0237	.0135	4.45	-.034	-.0068	.0047	.0267	-.0972
	7.6	4.9	.224	.0483	-.0000	4.63	-.032	-.0084	.0044	.0354	-.1308
	11.6	5.0	.331	.0878	-.0113	3.77	-.032	-.0094	.0032	.0434	-.1630
	13.5	5.0	.379	.1110	-.0165	3.41	-.031	-.0098	.0029	.0471	-.1785
3.05	- 10.6	4.9	-.240	.0567	.0516	- 4.23	-.054	-.0045	.0112	-.0020	.0169
	- 6.6	4.9	-.144	.0297	.0426	- 4.84	-.046	-.0048	.0093	.0056	-.0133
	- 4.6	4.9	-.096	.0216	.0376	- 4.42	-.042	-.0050	.0082	.0092	-.0279
	- 2.5	4.9	-.048	.0170	.0321	- 2.84	-.040	-.0051	.0070	.0130	-.0422
	- 0.5	4.9	-.002	.0155	.0263	- 0.11	-.036	-.0051	.0055	.0168	-.0574
	1.4	4.9	.046	.0167	.0201	2.73	-.034	-.0052	.0045	.0206	-.0718
	3.5	4.9	.094	.0218	.0147	4.29	-.032	-.0056	.0035	.0245	-.0859
	7.6	4.9	.196	.0433	.0050	4.54	-.030	-.0069	.0028	.0320	-.1157
	11.6	4.9	.289	.0779	-.0026	3.71	-.030	-.0082	.0016	.0396	-.1460
	13.4	5.0	.333	.0987	-.0064	3.37	-.030	-.0090	.0017	.0431	-.1610
3.53	- 10.6	5.0	-.209	.0524	.0423	- 3.99	-.052	-.0028	.0096	-.0008	.0141
	- 6.6	5.0	-.124	.0284	.0359	- 4.35	-.045	-.0037	.0079	.0059	-.0136
	- 4.6	5.0	-.081	.0213	.0321	- 3.81	-.042	-.0041	.0071	.0091	-.0261
	- 2.5	5.0	-.041	.0171	.0283	- 2.38	-.040	-.0045	.0061	.0122	-.0379
	- 0.5	5.0	.001	.0156	.0238	0.09	-.037	-.0047	.0051	.0161	-.0527
	1.4	5.0	.042	.0169	.0200	2.51	-.035	-.0049	.0041	.0196	-.0654
	3.4	5.0	.085	.0211	.0160	4.01	-.032	-.0051	.0034	.0232	-.0794
	7.5	5.0	.174	.0401	.0100	4.34	-.031	-.0063	.0024	.0304	-.1075
	11.6	5.0	.258	.0713	.0049	3.62	-.030	-.0079	.0013	.0377	-.1363
	13.4	5.1	.297	.0899	.0026	3.31	-.030	-.0088	.0013	.0412	-.1510

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(c) BVWC, $\delta = 19.4°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.7	4.9	- .265	.0669	.0837	- 3.96	- .057	- .0055	.0134	.0133	- .0351
	- 6.6	4.9	- .155	.0380	.0704	- 4.09	- .050	- .0058	.0106	.0209	- .0686
	- 4.5	4.9	- .102	.0299	.0635	- 3.42	- .047	- .0062	.0091	.0248	- .0857
	- 2.5	4.9	- .047	.0252	.0556	- 1.86	- .043	- .0065	.0073	.0287	- .1021
	- 0.5	4.9	.006	.0248	.0472	0.23	- .039	- .0070	.0060	.0329	- .1200
	1.5	4.9	.057	.0272	.0390	2.09	- .036	- .0074	.0049	.0370	- .1378
	3.5	4.9	.109	.0330	.0300	3.31	- .035	- .0076	.0045	.0409	- .1539
	7.6	4.9	.226	.0587	.0149	3.84	- .033	- .0092	.0035	.0493	- .1902
	11.7	5.0	.331	.0993	.0030	3.33	- .034	- .0101	.0037	.0575	- .2275
	13.5	5.0	.376	.1222	- .0020	3.08	- .033	- .0106	.0034	.0612	- .2457
3.05	- 10.6	4.9	- .224	.0598	.0694	- 3.74	- .056	- .0047	.0113	.0135	- .0317
	- 6.5	4.9	- .129	.0343	.0595	- 3.75	- .048	- .0050	.0093	.0203	- .0617
	- 4.5	4.9	- .082	.0268	.0540	- 3.06	- .046	- .0055	.0083	.0238	- .0767
	- 2.5	4.9	- .035	.0236	.0485	- 1.47	- .042	- .0056	.0066	.0272	- .0916
	- 0.4	4.9	.012	.0234	.0426	0.51	- .039	- .0058	.0051	.0308	- .1082
	1.5	4.9	.056	.0250	.0365	2.22	- .036	- .0061	.0041	.0344	- .1238
	3.5	4.9	.100	.0309	.0304	3.22	- .034	- .0063	.0035	.0383	- .1390
	7.6	4.9	.199	.0540	.0203	3.69	- .031	- .0076	.0021	.0465	- .1746
	11.6	4.9	.290	.0896	.0136	3.24	- .031	- .0092	.0023	.0544	- .2119
	13.5	5.0	.329	.1102	.0104	2.99	- .032	- .0100	.0026	.0581	- .2293
3.53	- 10.6	5.0	- .193	.0549	.0584	- 3.51	- .054	- .0032	.0097	.0136	- .0315
	- 6.6	5.0	- .109	.0322	.0512	- 3.39	- .047	- .0041	.0079	.0197	- .0571
	- 4.6	5.0	- .068	.0262	.0475	- 2.57	- .047	- .0045	.0077	.0230	- .0714
	- 2.5	5.0	- .026	.0230	.0435	- 1.13	- .043	- .0048	.0063	.0264	- .0858
	- 0.5	5.0	.016	.0228	.0394	0.68	- .039	- .0051	.0051	.0297	- .1000
	1.4	5.0	.052	.0249	.0358	2.10	- .037	- .0054	.0041	.0335	- .1160
	3.4	5.0	.091	.0294	.0318	3.09	- .035	- .0056	.0035	.0371	- .1306
	7.5	5.0	.177	.0502	.0260	3.53	- .031	- .0069	.0023	.0449	- .1646
	11.5	5.0	.259	.0828	.0227	3.13	- .031	- .0088	.0024	.0527	- .2001
	13.4	5.1	.295	.1010	.0208	2.92	- .030	- .0099	.0022	.0567	- .2195

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(d) BVW

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	4.9	-.277	.0632	.0692	-4.39	-.056	-.0054	.0125		
	-6.5	4.9	-.174	.0315	.0450	-5.52	-.046	-.0050	.0106		
	-4.4	4.9	-.122	.0216	.0320	-5.65	-.043	-.0049	.0097		
	-2.4	4.9	-.068	.0149	.0182	-4.53	-.039	-.0047	.0087		
	-0.4	4.9	-.012	.0125	.0039	-1.00	-.037	-.0044	.0077		
	1.6	4.9	.041	.0132	-.0099	3.10	-.034	-.0042	.0068		
	3.6	4.9	.094	.0177	-.0237	5.30	-.034	-.0042	.0061		
	7.6	4.9	.201	.0384	-.0501	5.24	-.035	-.0050	.0042		
	11.7	5.0	.305	.0740	-.0729	4.13	-.037	-.0064	.0015		
	13.5	5.0	.349	.0940	-.0817	3.71	-.039	-.0073	.0001		
3.05	-10.4	4.9	-.238	.0557	.0551	-4.28	-.055	-.0045	.0105		
	-6.4	4.9	-.147	.0283	.0357	-5.19	-.045	-.0046	.0088		
	-4.4	4.9	-.102	.0198	.0253	-5.17	-.041	-.0045	.0078		
	-2.4	4.9	-.055	.0141	.0143	-3.92	-.037	-.0043	.0066		
	-0.3	4.8	-.009	.0122	.0033	-0.77	-.035	-.0040	.0056		
	1.6	4.9	.035	.0127	-.0075	2.76	-.033	-.0039	.0047		
	3.6	4.9	.081	.0167	-.0181	4.85	-.032	-.0039	.0038		
	7.6	4.9	.173	.0345	-.0391	5.03	-.033	-.0049	.0020		
	11.7	4.9	.265	.0662	-.0576	4.00	-.035	-.0065	-.0004		
	13.5	4.9	.304	.0834	-.0649	3.64	-.038	-.0074	-.0009		
3.53	-10.5	5.0	-.207	.0507	.0439	-4.07	-.054	-.0028	.0092		
	-6.4	4.9	-.126	.0264	.0284	-4.77	-.044	-.0034	.0073		
	-4.4	4.9	-.086	.0191	.0201	-4.49	-.040	-.0036	.0065		
	-2.4	4.9	-.047	.0145	.0116	-3.25	-.037	-.0036	.0056		
	-0.4	4.9	-.006	.0123	.0029	-0.52	-.034	-.0035	.0044		
	1.5	4.9	.031	.0130	-.0057	2.42	-.033	-.0035	.0035		
	3.6	4.9	.070	.0165	-.0141	4.22	-.033	-.0037	.0029		
	7.6	5.0	.152	.0322	-.0308	4.71	-.033	-.0049	.0012		
	11.6	5.0	.234	.0600	-.0460	3.89	-.036	-.0068	-.0005		
	13.4	5.0	.269	.0760	-.0526	3.54	-.038	-.0078	-.0006		

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(e) BWC, $\delta = 0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.7	4.9	-.293	.0656	.0318	-4.47	-.022	.0062	-.0045	-.0234	.0897
	-6.6	4.9	-.180	.0312	.0204	-5.77	-.018	.0039	-.0056	-.0144	.0554
	-4.6	4.9	-.125	.0206	.0142	-6.08	-.016	.0025	-.0059	-.0098	.0369
	-2.5	4.9	-.067	.0135	.0083	-4.96	-.016	.0014	-.0063	-.0049	.0180
	-0.5	4.9	-.010	.0109	.0013	-0.96	-.015	.0003	-.0064	-.0002	.0004
	1.5	4.9	.044	.0118	-.0058	3.72	-.015	-.0007	-.0063	.0041	-.0168
	3.5	4.9	.103	.0169	-.0121	6.09	-.015	-.0020	-.0062	.0091	-.0367
	7.6	4.9	.217	.0394	-.0240	5.50	-.018	-.0045	-.0054	.0188	-.0743
	11.7	5.0	.328	.0786	-.0348	4.17	-.022	-.0066	-.0044	.0274	-.1071
	13.6	5.0	.376	.1013	-.0395	3.71	-.024	-.0074	-.0039	.0310	-.1222
3.05	-10.6	4.9	-.250	.0572	.0231	-4.36	-.022	.0054	-.0046	-.0203	.0765
	-6.5	4.9	-.152	.0277	.0148	-5.47	-.019	.0031	-.0057	-.0125	.0470
	-4.5	4.9	-.102	.0182	.0107	-5.64	-.018	.0020	-.0060	-.0085	.0310
	-2.5	4.8	-.054	.0129	.0058	-4.15	-.016	.0011	-.0066	-.0044	.0153
	-0.4	4.8	-.006	.0106	.0012	-0.54	-.016	.0002	-.0066	-.0002	-.0004
	1.5	4.8	.041	.0114	-.0037	3.59	-.016	-.0007	-.0065	.0037	-.0155
	3.5	4.9	.090	.0159	-.0081	5.66	-.016	-.0016	-.0063	.0080	-.0312
	7.6	4.9	.186	.0353	-.0167	5.28	-.019	-.0038	-.0055	.0162	-.0622
	11.7	4.9	.284	.0689	-.0244	4.12	-.023	-.0060	-.0047	.0239	-.0913
	13.5	4.9	.328	.0895	-.0278	3.66	-.025	-.0069	-.0042	.0272	-.1055
3.53	-10.6	5.0	-.217	.0531	.0156	-4.10	-.025	.0056	-.0043	-.0182	.0677
	-6.5	4.9	-.132	.0269	.0102	-4.90	-.021	.0032	-.0053	-.0114	.0414
	-4.5	4.9	-.089	.0184	.0075	-4.86	-.020	.0021	-.0057	-.0077	.0281
	-2.5	4.9	-.047	.0131	.0043	-3.56	-.019	.0011	-.0061	-.0040	.0146
	-0.5	4.9	-.005	.0115	.0011	-0.42	-.019	.0002	-.0061	-.0003	.0005
	1.4	4.9	.037	.0120	-.0023	3.10	-.018	-.0006	-.0061	.0035	-.0135
	3.5	4.9	.080	.0158	-.0052	5.04	-.019	-.0016	-.0059	.0075	-.0282
	7.5	5.0	.168	.0338	-.0107	4.96	-.020	-.0038	-.0051	.0150	-.0567
	11.6	5.0	.252	.0632	-.0162	3.99	-.025	-.0062	-.0043	.0219	-.0818
	13.4	5.0	.292	.0815	-.0190	3.58	-.026	-.0072	-.0040	.0251	-.0948

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5^{\circ}$ - Continued

(f) BWC, $\delta = 10.0^{\circ}$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	-.278	.0600	.0599	- 4.64	-.023	.0051	-.0060	-.0042	.0241
	- 6.4	4.9	-.167	.0293	.0486	- 5.71	-.019	.0026	-.0062	.0047	-.0126
	- 4.4	4.9	-.111	.0202	.0422	- 5.52	-.017	.0013	-.0065	.0090	-.0294
	- 2.4	4.9	-.056	.0149	.0352	- 3.78	-.016	.0000	-.0069	.0135	-.0467
	- 0.3	4.9	-.003	.0138	.0277	- 0.19	-.015	-.0011	-.0070	.0179	-.0632
	3.6	4.9	.109	.0219	.0120	4.99	-.016	-.0036	-.0066	.0265	-.0957
	7.7	4.9	.226	.0473	-.0011	4.78	-.017	-.0062	-.0059	.0351	-.1300
	11.8	5.0	.334	.0879	-.0124	3.80	-.021	-.0080	-.0041	.0431	-.1619
	13.7	5.0	.381	.1111	-.0175	3.42	-.023	-.0087	-.0032	.0466	-.1765
3.06	- 10.5	4.9	-.236	.0535	.0486	- 4.42	-.024	.0047	-.0059	-.0023	.0176
	- 6.4	4.9	-.140	.0271	.0398	- 5.18	-.020	.0023	-.0063	.0054	-.0131
	- 4.4	4.9	-.093	.0193	.0351	- 4.83	-.019	.0012	-.0066	.0090	-.0270
	- 2.3	4.9	-.045	.0150	.0299	- 2.97	-.019	.0002	-.0068	.0128	-.0415
	- 0.3	4.9	.002	.0142	.0243	0.15	-.017	-.0008	-.0071	.0161	-.0542
	1.6	4.9	.049	.0155	.0186	3.14	-.016	-.0017	-.0067	.0202	-.0702
	3.7	4.9	.097	.0211	.0131	4.59	-.017	-.0027	-.0065	.0239	-.0838
	7.7	4.9	.198	.0430	.0041	4.60	-.019	-.0050	-.0057	.0318	-.1144
	11.8	4.9	.290	.0779	-.0036	3.72	-.022	-.0070	-.0041	.0393	-.1448
	13.6	5.0	.333	.0989	-.0068	3.36	-.025	-.0080	-.0032	.0429	-.1606
3.53	- 10.5	5.0	-.208	.0504	.0394	- 4.13	-.027	.0051	-.0053	-.0014	.0148
	- 6.4	5.0	-.120	.0265	.0329	- 4.54	-.023	.0025	-.0058	.0055	-.0118
	- 4.4	5.0	-.079	.0202	.0297	- 3.91	-.021	.0014	-.0061	.0089	-.0257
	- 2.4	5.0	-.036	.0157	.0259	- 2.28	-.020	.0003	-.0064	.0123	-.0390
	- 0.4	5.0	.004	.0147	.0221	0.27	-.020	-.0006	-.0064	.0157	-.0514
	1.6	5.0	.045	.0164	.0182	2.75	-.019	-.0015	-.0061	.0192	-.0639
	3.6	5.0	.086	.0210	.0147	4.08	-.018	-.0024	-.0059	.0227	-.0774
	7.6	5.0	.173	.0402	.0092	4.31	-.020	-.0046	-.0050	.0301	-.1059
	11.7	5.0	.258	.0722	.0042	3.58	-.024	-.0070	-.0034	.0375	-.1354
	13.5	5.1	.296	.0909	.0024	3.26	-.025	-.0081	-.0026	.0408	-.1480

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(g) BWC, $\delta = 19.9°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	- .262	.0633	.0813	- 4.14	- .023	.0050	- .0059	.0137	- .0365
	- 6.4	4.9	- .151	.0350	.0681	- 4.32	- .020	.0020	- .0067	.0215	- .0711
	- 4.4	4.9	- .098	.0268	.0616	- 3.66	- .018	.0004	- .0073	.0252	- .0870
	- 2.4	4.9	- .043	.0230	.0540	- 1.85	- .017	- .0010	- .0077	.0292	- .1043
	- 0.3	4.9	.009	.0224	.0461	0.40	- .016	- .0025	- .0077	.0333	- .1222
	1.7	4.9	.060	.0255	.0378	2.36	- .016	- .0038	- .0073	.0373	- .1394
	3.7	4.9	.112	.0319	.0291	3.53	- .017	- .0048	- .0064	.0414	- .1573
	7.7	4.9	.228	.0583	.0143	3.90	- .016	- .0073	- .0065	.0496	- .1920
	11.8	4.9	.332	.0995	.0024	3.34	- .021	- .0089	- .0043	.0579	- .2302
	13.7	5.0	.376	.1226	- .0026	3.07	- .022	- .0098	- .0029	.0614	- .2475
3.05	- 6.4	4.9	- .127	.0322	.0573	- 3.94	- .022	.0021	- .0063	.0205	- .0622
	- 4.3	4.8	- .079	.0253	.0521	- 3.11	- .021	.0008	- .0069	.0238	- .0776
	- 2.3	4.8	- .031	.0218	.0469	- 1.44	- .020	- .0004	- .0071	.0273	- .0927
	- 0.3	4.8	.014	.0218	.0414	0.62	- .019	- .0015	- .0072	.0310	- .1094
	1.7	4.8	.058	.0246	.0356	2.33	- .018	- .0027	- .0069	.0346	- .1251
	3.7	4.9	.101	.0298	.0297	3.39	- .018	- .0036	- .0063	.0387	- .1419
	7.7	4.9	.200	.0533	.0202	3.74	- .019	- .0060	- .0059	.0467	- .1761
	11.8	4.9	.290	.0895	.0131	3.24	- .023	- .0082	- .0035	.0547	- .2122
	13.6	4.9	.329	.1101	.0103	2.99	- .024	- .0093	- .0023	.0585	- .2313
3.53	- 10.5	5.0	- .190	.0538	.0559	- 3.53	- .027	.0047	- .0051	.0138	- .0329
	- 6.4	4.9	- .107	.0322	.0487	- 3.32	- .024	.0022	- .0056	.0199	- .0596
	- 4.4	4.9	- .066	.0264	.0456	- 2.51	- .021	.0009	- .0061	.0230	- .0725
	- 2.4	4.9	- .024	.0231	.0420	- 1.03	- .021	- .0001	- .0064	.0264	- .0864
	- 0.3	4.9	.017	.0231	.0383	0.74	- .020	- .0011	- .0064	.0302	- .1029
	1.6	4.9	.054	.0253	.0348	2.13	- .019	- .0022	- .0063	.0335	- .1167
	3.6	4.9	.092	.0303	.0313	3.04	- .020	- .0032	- .0057	.0373	- .1325
	7.6	5.0	.177	.0512	.0258	3.47	- .021	- .0054	- .0045	.0453	- .1667
	13.5	5.0	.293	.1026	.0207	2.86	- .025	- .0093	- .0015	.0569	- .2208

TABLE III.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATIONS AT $\beta \approx 5°$ - Concluded

(h) BW

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	-.274	.0613	.0664	- 4.47	-.024	.0048	-.0066		
	- 6.5	4.9	-.170	.0297	.0425	- 5.73	-.018	.0026	-.0064		
	- 4.4	4.9	-.117	.0198	.0290	- 5.91	-.017	.0016	-.0063		
	- 2.4	4.9	-.063	.0133	.0157	- 4.71	-.015	.0009	-.0065		
	- 0.4	4.9	-.009	.0108	.0014	- 0.79	-.015	.0002	-.0065		
	1.6	4.9	.044	.0116	-.0122	3.82	-.014	-.0004	-.0064		
	3.6	4.9	.099	.0166	-.0257	5.94	-.015	-.0011	-.0064		
	7.7	4.9	.205	.0372	-.0514	5.51	-.020	-.0031	-.0062		
	11.7	4.9	.306	.0722	-.0740	4.24	-.026	-.0052	-.0066		
	13.6	4.9	.350	.0928	-.0825	3.77	-.030	-.0063	-.0065		
3.05	- 10.4	4.9	-.236	.0544	.0522	- 4.34	-.027	.0046	-.0064		
	- 4.4	4.9	-.098	.0183	.0227	- 5.37	-.018	.0015	-.0065		
	- 2.3	4.9	-.052	.0128	.0121	- 4.09	-.017	.0007	-.0065		
	- 0.4	4.9	-.007	.0106	.0012	- 0.62	-.016	.0001	-.0066		
	1.6	4.9	.039	.0115	-.0097	3.37	-.016	-.0004	-.0065		
	3.6	4.9	.083	.0154	-.0199	5.43	-.017	-.0011	-.0064		
	7.7	4.9	.176	.0332	-.0405	5.29	-.021	-.0030	-.0064		
	11.7	4.9	.265	.0642	-.0583	4.13	-.029	-.0053	-.0063		
	13.5	5.0	.303	.0818	-.0657	3.70	-.033	-.0064	-.0060		
3.53	- 10.5	5.0	-.205	.0501	.0411	- 4.10	-.029	.0051	-.0057		
	- 6.4	5.0	-.126	.0259	.0262	- 4.87	-.023	.0027	-.0060		
	- 4.4	5.0	-.086	.0180	.0179	- 4.79	-.021	.0017	-.0062		
	- 2.4	5.0	-.045	.0134	.0097	- 3.38	-.019	.0009	-.0063		
	- 0.4	5.0	-.006	.0116	.0011	- 0.48	-.018	.0001	-.0063		
	1.6	5.0	.033	.0121	-.0075	2.77	-.019	-.0005	-.0061		
	3.6	5.0	.073	.0156	-.0155	4.68	-.020	-.0013	-.0062		
	7.6	5.0	.151	.0308	-.0319	4.91	-.024	-.0033	-.0059		
	11.7	5.0	.231	.0583	-.0463	3.96	-.031	-.0058	-.0053		
	13.4	5.0	.266	.0739	-.0525	3.59	-.034	-.0069	-.0050		

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATION AT VARIABLE β

(a) BVWC, $\alpha \approx 0^{\circ}$, $\delta = 0^{\circ}$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 0.5	- 2.0	-.015	.0124	.0027	-1.23	.013	.0020	-.0034	-.0004	.0009
	- 0.5	0.0	-.014	.0122	.0025	-1.15	-.002	.0002	-.0002	-.0004	.0009
	- 0.5	1.9	-.014	.0125	.0029	-1.12	-.016	-.0018	.0033	-.0004	.0009
	- 0.5	3.9	-.015	.0128	.0031	-1.14	-.031	-.0037	.0065	-.0003	.0002
	- 0.5	6.9	-.015	.0134	.0040	-1.14	-.055	-.0061	.0105	-.0004	.0009
3.05	- 0.5	- 2.0	-.012	.0119	.0021	-0.98	.013	.0017	-.0025	-.0003	.0012
	- 0.5	0.0	-.011	.0115	.0021	-0.95	-.001	.0000	.0000	-.0003	.0012
	- 0.5	1.9	-.011	.0120	.0021	-0.92	-.015	-.0017	.0024	-.0003	.0012
	- 0.5	3.9	-.012	.0123	.0028	-0.95	-.029	-.0033	.0046	-.0003	.0004
	- 0.5	6.9	-.012	.0128	.0034	-0.91	-.052	-.0055	.0081	-.0003	.0004
	- 0.5	9.8	-.013	.0132	.0043	-0.99	-.081	-.0075	.0112	-.0003	.0004
3.53	- 0.6	- 2.0	-.011	.0122	.0021	-0.94	.012	.0016	-.0020	-.0005	.0021
	- 0.6	0.0	-.010	.0118	.0018	-0.83	-.001	.0001	.0000	-.0003	.0014
	- 0.6	2.0	-.011	.0122	.0022	-0.87	-.014	-.0014	.0020	-.0003	.0014
	- 0.6	3.9	-.011	.0126	.0025	-0.90	-.028	-.0029	.0040	-.0003	.0014
	- 0.5	7.0	-.011	.0128	.0032	-0.89	-.053	-.0049	.0066	-.0001	-.0002
	- 0.5	9.9	-.011	.0131	.0036	-0.86	-.080	-.0066	.0082	-.0001	-.0002

TABLE IV.- AERODYNAMIC CHARACTERISTICS OF WING-ON CONFIGURATION AT VARIABLE β - Concluded

(b) BVWC, $\alpha \approx 10^{\circ}$, $\delta = 0^{\circ}$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	9.6	- 2.0	.267	.0564	-.0291	4.74	.010	.0033	-.0021	.0227	-.0878
	9.6	0.0	.269	.0566	-.0292	4.75	-.002	.0003	-.0002	.0229	-.0884
	9.6	1.9	.268	.0567	-.0289	4.73	-.015	-.0029	.0018	.0229	-.0891
	9.6	3.9	.269	.0574	-.0285	4.69	-.029	-.0059	.0036	.0229	-.0892
	9.6	6.9	.268	.0579	-.0270	4.63	-.049	-.0099	.0049	.0231	-.0905
	9.5	10.0	.265	.0580	-.0242	4.58	-.076	-.0137	.0077	.0232	-.0920
3.05	9.6	- 2.1	.235	.0507	-.0209	4.63	.010	.0027	-.0011	.0200	-.0759
	9.6	0.0	.235	.0506	-.0212	4.66	-.002	.0001	-.0001	.0201	-.0765
	9.5	1.9	.235	.0508	-.0209	4.62	-.014	-.0026	.0010	.0200	-.0767
	9.6	3.9	.234	.0510	-.0203	4.58	-.026	-.0051	.0018	.0200	-.0767
	9.6	6.9	.234	.0513	-.0192	4.57	-.046	-.0089	.0028	.0203	-.0782
	9.5	9.9	.233	.0517	-.0176	4.51	-.074	-.0127	.0048	.0203	-.0782
3.53	9.5	- 1.9	.206	.0460	-.0143	4.47	.011	.0027	-.0010	.0179	-.0673
	9.5	0.0	.207	.0460	-.0143	4.50	-.001	.0002	-.0001	.0181	-.0680
	9.5	2.0	.206	.0464	-.0139	4.45	-.012	-.0024	.0007	.0181	-.0680
	9.5	4.0	.207	.0467	-.0134	4.44	-.025	-.0051	.0013	.0181	-.0680
	9.5	7.0	.205	.0469	-.0125	4.36	-.046	-.0088	.0014	.0182	-.0690
	9.5	10.0	.202	.0465	-.0123	4.35	-.073	-.0122	.0022	.0180	-.0682

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0°$
(a) BVC. $\delta = 0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	00.0	-.065	.0201	-.0519	-3.23	-.001	.0000	.0003	-.0230	.0883
	- 6.5	00.0	-.036	.0111	-.0333	-3.26	-.001	.0001	.0001	-.0145	.0561
	- 4.5	00.0	-.026	.0085	-.0222	-3.05	-.001	.0001	.0000	-.0099	.0383
	- 2.4	00.0	-.015	.0066	-.0111	-2.32	-.001	.0001	-.0001	-.0050	.0202
	- 0.4	00.0	-.005	.0061	-.0001	-0.86	-.001	.0001	-.0002	-.0004	.0017
	1.5	00.0	.003	.0061	.0106	0.54	.000	.0001	-.0003	.0041	-.0169
	3.5	00.0	.013	.0069	.0217	1.89	-.001	.0001	-.0003	.0089	-.0353
	7.6	00.0	.037	.0116	.0430	3.22	-.001	.0001	-.0003	.0183	-.0712
	11.6	00.0	.069	.0218	.0607	3.18	-.002	.0000	-.0002	.0268	-.1033
	14.3	00.0	.097	.0325	.0725	2.98	-.002	.0000	-.0003	.0321	-.1250
3.05	-10.5	00.0	-.064	.0202	-.0465	-3.16	-.001	.0000	.0003	-.0204	.0774
	- 6.4	00.0	-.036	.0112	-.0298	-3.21	-.002	.0000	.0002	-.0126	.0478
	- 4.4	00.0	-.024	.0086	-.0201	-2.83	-.001	.0000	.0002	-.0086	.0327
	- 2.4	00.0	-.015	.0069	-.0100	-2.23	-.001	.0000	.0001	-.0044	.0161
	- 0.4	00.0	-.006	.0061	-.0001	-0.97	-.001	.0000	.0000	-.0003	.0012
	1.5	00.0	.004	.0061	.0101	0.60	-.001	.0000	-.0001	.0038	-.0145
	3.5	00.0	.013	.0070	.0201	1.87	-.001	.0001	-.0001	.0080	-.0304
	7.6	00.0	.037	.0111	.0376	3.30	-.002	.0000	-.0001	.0155	-.0590
	11.6	00.0	.071	.0215	.0550	3.28	-.002	.0000	-.0001	.0239	-.0914
	14.3	00.0	.099	.0328	.0651	3.02	-.002	-.0001	-.0001	.0286	-.1097
3.53	-10.5	00.0	-.062	.0213	-.0427	-2.90	-.001	.0001	.0000	-.0185	.0694
	- 6.5	00.0	-.034	.0123	-.0270	-2.77	-.001	.0001	.0001	-.0115	.0425
	- 4.4	00.0	-.023	.0098	-.0184	-2.37	.000	.0001	.0000	-.0078	.0291
	- 2.4	00.0	-.012	.0079	-.0094	-1.55	-.001	.0000	.0000	-.0040	.0146
	- 0.4	00.0	-.004	.0070	.0000	-0.60	.000	.0001	-.0001	-.0003	.0005
	1.5	00.0	.006	.0074	.0093	0.79	-.001	.0001	-.0001	.0033	-.0128
	3.5	00.0	.015	.0081	.0181	1.81	-.001	.0001	-.0001	.0069	-.0261
	7.5	00.0	.037	.0121	.0357	3.05	-.001	.0001	-.0002	.0143	-.0536
	11.6	00.0	.072	.0223	.0503	3.23	-.001	.0001	-.0001	.0214	-.0809
	14.3	00.0	.096	.0325	.0609	2.96	-.002	.0001	-.0002	.0254	-.0959

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT β = 0° - Continued
(b) BVC, δ = 2.5°

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	00.0	-.060	.0190	-.0458	-3.18	.000	.0001	.0002	-.0192	.0762
	- 6.4	00.0	-.031	.0105	-.0266	-2.94	.000	.0001	-.0001	-.0103	.0415
	- 4.4	00.0	-.019	.0082	-.0156	-2.38	.000	.0002	-.0002	-.0054	.0227
	- 2.4	00.0	-.009	.0069	-.0049	-1.27	.000	.0002	-.0002	-.0008	.0043
	- 0.4	00.0	.000	.0069	.0060	0.03	.000	.0002	-.0002	.0036	-.0133
	1.5	00.0	.009	.0072	.0173	1.30	.000	.0002	-.0003	.0085	-.0322
	3.5	00.0	.020	.0084	.0285	2.40	.000	.0002	-.0004	.0134	-.0504
	7.6	00.0	.042	.0137	.0493	3.06	-.001	.0002	-.0004	.0222	-.0838
	11.7	00.0	.073	.0241	.0669	3.01	-.001	.0001	-.0005	.0306	-.1163
	14.3	00.0	.100	.0356	.0786	2.82	-.001	.0000	-.0002	.0362	-.1389
3.05	-10.5	00.0	-.059	.0218	-.0404	-2.71	.000	.0000	.0001	-.0164	.0641
	- 6.4	00.0	-.028	.0128	-.0236	-2.20	.000	.0000	.0000	-.0087	.0349
	- 4.4	00.0	-.018	.0106	-.0139	-1.68	.000	.0000	.0000	-.0044	.0181
	- 2.4	00.0	-.007	.0093	-.0043	-0.73	.000	.0001	-.0002	-.0004	.0029
	- 0.4	00.0	.001	.0088	.0059	0.10	.000	.0001	-.0001	.0035	-.0122
	1.6	00.0	.010	.0091	.0161	1.14	.000	.0001	-.0001	.0077	-.0281
	3.6	00.0	.019	.0102	.0264	1.86	.000	.0001	-.0001	.0120	-.0438
	7.6	00.0	.042	.0153	.0447	2.75	.000	.0001	-.0003	.0199	-.0738
	11.6	00.0	.074	.0256	.0606	2.88	-.001	.0000	-.0002	.0272	-.1015
	14.3	00.0	.100	.0365	.0718	2.75	-.001	.0000	-.0000	.0324	-.1235
3.53	-10.5	00.0	-.062	.0213	-.0363	-2.90	-.001	.0001	-.0001	-.0144	.0561
	- 6.5	00.0	-.031	.0126	-.0208	-2.49	.000	.0001	-.0001	-.0074	.0292
	- 4.4	00.0	-.020	.0103	-.0123	-1.94	-.001	.0001	-.0001	-.0038	.0160
	- 2.4	00.0	-.009	.0089	-.0034	-1.04	.000	.0001	-.0002	-.0001	.0019
	- 0.4	00.0	.000	.0084	.0057	0.02	.000	.0001	-.0002	.0035	-.0122
	1.5	00.0	.008	.0084	.0151	0.89	-.001	.0001	-.0002	.0072	-.0255
	3.5	00.0	.017	.0094	.0243	1.82	.000	.0001	-.0002	.0110	-.0393
	7.6	00.0	.040	.0140	.0414	2.83	-.001	.0001	-.0002	.0183	-.0657
	11.6	00.0	.072	.0243	.0562	2.97	-.001	.0001	-.0003	.0254	-.0930
	14.2	00.0	.096	.0344	.0667	2.80	-.002	.0001	-.0001	.0299	-.1110

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0^\circ$ - Continued

(c) BVC. $\delta = 4.8^\circ$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	00.0	-.053	.0165	-.0381	-3.20	-.001	.0001	.0001	-.0141	.0595
	- 6.4	00.0	-.023	.0089	-.0188	-2.61	-.001	.0001	.0000	-.0049	.0214
	- 4.4	00.0	-.012	.0073	-.0085	-1.63	.000	.0001	-.0001	-.0006	.0040
	- 2.4	00.0	-.002	.0064	.0020	-0.27	.000	.0001	-.0002	.0037	-.0126
	- 0.4	00.0	.008	.0065	.0132	1.17	.000	.0001	-.0002	.0086	-.0320
	3.5	00.0	.027	.0094	.0346	2.89	.000	.0001	-.0004	.0179	-.0662
	7.6	00.0	.049	.0151	.0548	3.21	-.001	.0001	-.0004	.0265	-.0991
	11.6	00.0	.077	.0260	.0725	2.96	-.001	.0001	-.0004	.0348	-.1324
	14.3	00.0	.105	.0375	.0841	2.79	-.001	.0000	-.0002	.0401	-.1546
3.05	-10.5	00.0	-.052	.0171	-.0332	-3.05	-.001	.0000	.0002	-.0118	.0494
	- 6.4	00.0	-.023	.0092	-.0164	-2.54	-.001	.0000	.0001	-.0038	.0172
	- 4.4	00.0	-.012	.0075	-.0070	-1.54	-.001	.0000	.0001	.0001	.0012
	- 2.4	00.0	-.002	.0066	.0025	-0.30	-.001	.0000	.0000	.0040	-.0133
	- 0.4	00.0	.007	.0069	.0124	1.01	-.001	.0000	.0000	.0082	-.0292
	1.5	00.0	.017	.0077	.0228	2.15	-.001	.0000	-.0001	.0122	-.0445
	3.6	00.0	.026	.0092	.0321	2.82	-.001	-.0001	.0000	.0164	-.0596
	7.6	00.0	.048	.0151	.0503	3.18	-.001	.0000	-.0001	.0240	-.0879
	11.6	00.0	.078	.0259	.0665	3.03	-.002	.0000	-.0002	.0316	-.1182
3.53	-10.5	00.0	-.053	.0197	-.0298	-2.72	-.001	.0000	.0001	-.0099	.0414
	- 6.4	00.0	-.023	.0118	-.0144	-1.96	.000	.0001	-.0001	-.0030	.0146
	- 4.4	00.0	-.010	.0093	-.0059	-1.12	.000	.0001	-.0001	.0007	-.0010
	- 2.4	00.0	-.001	.0089	.0026	-0.15	.000	.0001	-.0001	.0042	-.0139
	- 0.4	00.0	.007	.0087	.0119	0.82	.000	.0001	-.0002	.0077	-.0266
	1.5	00.0	.018	.0092	.0209	1.94	.001	.0001	-.0003	.0114	-.0400
	3.5	00.0	.026	.0106	.0298	2.45	.000	.0001	-.0001	.0150	-.0537
	7.6	00.0	.046	.0158	.0468	2.93	-.001	.0001	-.0002	.0221	-.0795
	11.6	00.0	.078	.0266	.0615	2.94	-.001	.0001	-.0003	.0294	-.1074
	14.3	00.0	.103	.0374	.0725	2.74	-.001	.0000	-.0003	.0342	-.1274

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0°$ - Continued

(d) BVC, $\delta = 10.2°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	00.0	-.049	.0160	-.0236	-3.07	-.003	.0002	-.0002	-.0044	.0257
	-6.4	00.0	-.019	.0095	-.0051	-2.01	-.003	.0002	-.0003	.0044	-.0111
	-4.4	00.0	-.007	.0082	.0048	-0.82	-.003	.0002	-.0004	.0087	-.0276
	-2.4	00.0	.003	.0081	.0148	0.31	-.003	.0002	-.0005	.0130	-.0439
	-0.4	00.0	.012	.0091	.0251	1.35	-.002	.0002	-.0006	.0174	-.0606
	1.6	00.0	.021	.0105	.0355	1.96	-.002	.0002	-.0007	.0220	-.0776
	3.6	00.0	.029	.0125	.0451	2.34	-.003	.0002	-.0007	.0262	-.0940
	7.6	00.0	.050	.0192	.0642	2.60	-.003	.0001	-.0007	.0344	-.1262
	11.7	00.0	.077	.0303	.0813	2.53	-.004	.0000	-.0008	.0425	-.1591
	14.3	00.0	.099	.0410	.0931	2.42	-.004	.0000	-.0009	.0478	-.1811
3.05	-10.4	00.0	-.048	.0173	-.0204	-2.76	-.003	.0001	-.0003	-.0028	.0205
	-6.4	00.0	-.016	.0108	-.0041	-1.50	-.004	.0001	-.0002	.0048	-.0111
	-4.4	00.0	-.006	.0096	.0049	-0.63	-.004	.0000	-.0003	.0086	-.0256
	-2.4	00.0	.004	.0093	.0141	0.38	-.003	.0000	-.0003	.0126	-.0399
	-0.4	00.0	.012	.0099	.0238	1.24	-.003	.0001	-.0003	.0163	-.0541
	1.6	00.0	.021	.0111	.0330	1.88	-.003	.0000	-.0004	.0202	-.0683
	3.6	00.0	.029	.0130	.0421	2.24	-.003	.0000	-.0004	.0241	-.0837
	7.6	00.0	.049	.0195	.0600	2.54	-.003	.0000	-.0004	.0320	-.1157
	11.6	00.0	.077	.0302	.0762	2.54	-.004	.0000	-.0005	.0394	-.1450
	14.4	00.0	.103	.0420	.0871	2.46	-.004	.0000	-.0006	.0444	-.1663
3.53	-10.5	00.0	-.046	.0195	-.0180	-2.34	-.001	.0000	.0000	-.0015	.0145
	-6.4	00.0	-.014	.0121	-.0035	-1.17	.000	.0000	-.0001	.0052	-.0131
	-4.4	00.0	-.003	.0107	.0043	-0.26	.000	.0000	-.0002	.0083	-.0242
	-2.4	00.0	.006	.0103	.0131	0.55	.000	.0000	-.0002	.0115	-.0369
	-0.4	00.0	.015	.0109	.0215	1.35	.001	.0000	-.0003	.0151	-.0504
	1.5	00.0	.022	.0120	.0306	1.83	.000	.0001	-.0001	.0187	-.0637
	3.5	00.0	.031	.0138	.0390	2.26	.000	.0001	-.0002	.0222	-.0771
	7.5	00.0	.051	.0199	.0557	2.55	.000	.0000	-.0003	.0297	-.1057
	11.6	00.0	.080	.0311	.0712	2.57	-.001	.0000	-.0005	.0370	-.1351
	14.3	00.0	.104	.0424	.0824	2.44	-.001	.0000	-.0005	.0421	-.1574

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0^\circ$ - Continued

(e) BVC, $\delta = 20.0^\circ$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.4	00.0	-.028	.0193	-.0022	-1.45	-.002	.0001	.0000	.0130	-.0339
	- 6.4	00.0	.000	.0155	.0156	-0.03	-.002	.0001	.0000	.0202	-.0671
	- 4.4	00.0	.010	.0157	.0249	0.64	-.001	.0001	.0000	.0242	-.0839
	- 2.4	00.0	.019	.0166	.0339	1.15	-.001	.0001	.0000	.0279	-.1001
	- 0.3	00.0	.029	.0185	.0436	1.55	-.001	.0002	-.0003	.0319	-.1181
	1.6	00.0	.037	.0210	.0525	1.74	-.001	.0002	-.0005	.0358	-.1359
	3.6	00.0	.045	.0241	.0612	1.87	-.001	.0002	-.0004	.0395	-.1530
	7.6	00.0	.059	.0318	.0784	1.85	-.002	.0002	-.0003	.0470	-.1894
	11.7	00.0	.081	.0438	.0949	1.86	-.003	.0001	-.0007	.0546	-.2255
	14.4	00.0	.104	.0560	.1077	1.86	-.002	.0001	-.0001	.0601	-.2553
3.05	- 10.4	00.0	-.030	.0211	-.0006	-1.42	-.002	.0000	.0000	.0133	-.0308
	- 6.4	00.0	-.001	.0169	.0151	-0.08	-.002	.0000	.0001	.0196	-.0603
	- 4.4	00.0	.010	.0165	.0235	0.59	-.002	.0000	.0001	.0231	-.0767
	- 2.3	00.0	.021	.0172	.0322	1.20	-.002	.0000	.0001	.0265	-.0924
	- 0.3	00.0	.028	.0190	.0410	1.49	-.001	.0000	-.0001	.0302	-.1079
	1.6	00.0	.037	.0212	.0498	1.73	-.001	.0001	-.0001	.0339	-.1253
	3.6	00.0	.045	.0242	.0584	1.85	-.001	.0001	-.0002	.0377	-.1421
	7.6	00.0	.061	.0321	.0748	1.90	-.002	.0001	-.0002	.0451	-.1770
	11.7	00.0	.084	.0443	.0916	1.90	-.003	.0001	-.0001	.0531	-.2177
	14.4	00.0	.108	.0572	.1044	1.89	-.002	.0000	-.0002	.0589	-.2484
3.53	- 10.4	00.0	-.029	.0209	.0002	-1.37	.000	.0000	-.0001	.0139	-.0298
	- 6.4	00.0	.000	.0163	.0138	-0.02	.000	.0000	-.0002	.0197	-.0552
	- 4.4	00.0	.011	.0157	.0219	0.68	.000	.0000	-.0002	.0229	-.0692
	- 2.4	00.0	.020	.0163	.0300	1.20	.000	.0000	-.0003	.0264	-.0849
	- 0.4	00.0	.027	.0178	.0383	1.54	.000	.0000	-.0002	.0299	-.1007
	1.5	00.0	.036	.0201	.0470	1.79	.000	.0001	-.0002	.0336	-.1169
	3.6	00.0	.044	.0230	.0550	1.91	-.001	.0001	-.0002	.0374	-.1330
	7.6	00.0	.059	.0309	.0717	1.92	-.001	.0001	-.0003	.0455	-.1696
	11.6	00.0	.086	.0436	.0887	1.98	-.002	.0000	-.0002	.0538	-.2099
	14.3	00.0	.108	.0559	.1006	1.93	-.002	.0000	-.0004	.0599	-.2392

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0^\circ$ - Continued

(f) BV

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.4	00.0	-.039	.0142	-.0171	- 2.72	.000	.0000	.0000		
	- 6.4	00.0	-.018	.0083	-.0112	- 2.21	.000	.0001	-.0002		
	- 4.4	00.0	-.013	.0068	-.0075	- 1.85	.000	.0001	-.0002		
	- 2.4	00.0	-.007	.0059	-.0036	- 1.23	.000	.0001	-.0002		
	- 0.4	00.0	-.005	.0054	.0008	- 0.85	.000	.0001	-.0003		
	1.6	00.0	.000	.0056	.0048	- 0.01	.000	.0001	-.0003		
	3.6	00.0	.003	.0060	.0090	0.52	.001	.0001	-.0004		
	7.6	00.0	.018	.0083	.0163	2.16	.000	.0001	-.0004		
	11.6	00.0	.046	.0157	.0221	2.95	.000	.0001	-.0002		
	14.3	00.0	.069	.0237	.0282	2.90	.000	.0001	-.0001		
3.05	- 10.4	00.0	-.042	.0153	-.0160	- 2.77	-.001	-.0001	.0001		
	- 6.3	00.0	-.020	.0091	-.0103	- 2.26	.000	.0000	.0000		
	- 4.4	00.0	-.014	.0075	-.0071	- 1.85	-.001	.0000	.0001		
	- 2.3	00.0	-.009	.0065	-.0030	- 1.35	-.001	.0000	.0000		
	- 0.3	00.0	-.005	.0056	.0009	- 0.90	.000	.0000	-.0001		
	1.6	00.0	-.001	.0058	.0050	- 0.14	.000	.0000	-.0001		
	3.6	00.0	.004	.0064	.0087	0.65	.000	-.0000	-.0001		
	7.6	00.0	.020	.0088	.0154	2.32	.000	.0001	-.0002		
	11.7	00.0	.049	.0162	.0212	3.05	.000	.0000	-.0001		
	14.3	00.0	.068	.0237	.0273	2.89	.000	.0000	-.0001		
3.53	- 10.4	00.0	-.041	.0162	-.0158	- 2.51	.000	-.0001	.0000		
	- 6.4	00.0	-.020	.0102	-.0099	- 1.94	.000	.0001	.0000		
	- 4.4	00.0	-.012	.0083	-.0067	- 1.50	.000	.0000	.0000		
	- 2.4	00.0	-.007	.0075	-.0032	- 0.99	.000	.0001	-.0001		
	- 0.4	00.0	-.003	.0065	.0005	- 0.50	.000	.0001	-.0001		
	1.5	00.0	.000	.0067	.0045	- 0.01	.000	.0001	-.0001		
	3.5	00.0	.005	.0070	.0084	0.79	.000	.0001	-.0001		
	7.6	00.0	.023	.0096	.0143	2.39	.000	.0001	-.0001		
	11.6	00.0	.050	.0168	.0207	2.96	.000	.0001	-.0001		
	14.3	00.0	.067	.0241	.0264	2.78	.000	.0001	.0000		

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0°$ - Continued

(g) BC, $\delta = 0°$

M	α, deg	β, deg	c_L	c_D	c_m	L/D	c_Y	c_{l_s}	c_{n_s}	c_{Z_c}	c_{h_c}
2.58	- 10.5	00.0	-.063	.0177	-.0531	-3.55	-.002	.0000	.0006	-.0231	.0897
	- 6.5	00.0	-.036	.0093	-.0340	-3.86	-.001	.0000	.0004	-.0144	.0564
	- 4.4	00.0	-.024	.0068	-.0231	-3.62	-.002	.0000	.0003	-.0097	.0387
	- 2.4	00.0	-.013	.0051	-.0121	-2.58	-.002	.0000	.0003	-.0048	.0186
	- 0.4	00.0	-.003	.0048	-.0012	-0.70	-.001	.0000	.0002	-.0003	.0011
	1.6	00.0	.005	.0050	.0097	1.05	-.002	.0000	.0003	.0042	-.0164
	3.5	00.0	.016	.0064	.0210	2.45	-.001	.0000	.0003	.0090	-.0352
	7.6	00.0	.040	.0114	.0423	3.48	-.002	.0000	.0002	.0184	-.0709
	11.7	00.0	.072	.0219	.0598	3.28	-.002	.0000	.0001	.0270	-.1038
	14.4	00.0	.100	.0331	.0713	3.03	-.002	.0000	-.0002	.0324	-.1258
3.05	- 10.4	00.0	-.063	.0180	-.0476	-3.50	-.002	.0000	.0004	-.0202	.0773
	- 6.4	00.0	-.034	.0093	-.0305	-3.65	-.002	.0000	.0002	-.0124	.0469
	- 4.4	00.0	-.024	.0071	-.0207	-3.37	-.002	.0000	.0002	-.0085	.0329
	- 2.4	00.0	-.013	.0055	-.0109	-2.38	-.002	.0000	.0001	-.0044	.0175
	- 0.4	00.0	-.004	.0051	-.0006	-0.72	-.001	.0000	.0002	-.0002	.0014
	1.6	00.0	.005	.0053	.0094	0.97	-.002	.0000	.0002	.0039	-.0149
	3.6	00.0	.016	.0062	.0192	2.54	-.001	.0000	.0002	.0080	-.0305
	7.6	00.0	.038	.0111	.0382	3.44	-.002	.0000	.0002	.0162	-.0616
	11.6	00.0	.073	.0217	.0539	3.34	-.002	.0000	.0000	.0239	-.0908
	14.3	00.0	.101	.0331	.0641	3.06	-.003	.0000	.0000	.0286	-.1092
3.53	- 10.5	00.0	-.061	.0208	-.0436	-2.93	-.001	.0000	.0002	-.0184	.0692
	- 6.5	00.0	-.033	.0122	-.0280	-2.69	-.001	.0000	.0002	-.0112	.0424
	- 4.4	00.0	-.021	.0097	-.0194	-2.20	-.001	.0000	.0002	-.0075	.0282
	- 2.4	00.0	-.011	.0080	-.0101	-1.43	-.001	.0000	.0002	-.0039	.0148
	- 0.4	00.0	-.002	.0072	-.0006	-0.35	.000	.0000	.0002	-.0002	.0007
	1.5	00.0	.006	.0074	.0088	0.77	-.001	.0000	.0002	.0034	-.0133
	3.5	00.0	.016	.0084	.0176	1.93	-.001	.0000	.0003	.0072	-.0271
	7.5	00.0	.038	.0129	.0348	2.99	-.001	.0000	.0002	.0145	-.0544
	11.6	00.0	.072	.0230	.0497	3.11	-.002	.0000	.0001	.0216	-.0816
	14.3	00.0	.099	.0337	.0593	2.93	-.002	.0000	.0001	.0263	-.1001

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0°$ - Continued

(h) BC, $\delta = 10.0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.4	00.0	-.042	.0133	-.0254	-3.18	-.001	-.0001	.0002	-.0044	.0248
	-6.4	00.0	-.012	.0076	-.0067	-1.55	-.001	.0000	.0001	.0044	-.0120
	-4.4	00.0	-.002	.0066	.0034	-0.23	-.001	-.0001	.0001	.0085	-.0277
	-2.4	00.0	.008	.0069	.0138	1.21	-.001	-.0001	.0001	.0129	-.0447
	-0.4	00.0	.017	.0078	.0241	2.23	-.001	-.0001	.0001	.0174	-.0616
	1.6	00.0	.027	.0097	.0341	2.80	-.001	-.0001	.0002	.0219	-.0784
	3.6	00.0	.035	.0120	.0441	2.92	-.001	.0000	.0002	.0261	-.0949
	7.6	00.0	.056	.0192	.0629	2.91	-.002	.0000	.0001	.0345	-.1283
	11.7	00.0	.084	.0310	.0795	2.70	-.002	.0000	.0000	.0424	-.1598
	14.4	00.0	.107	.0422	.0913	2.54	-.002	-.0002	-.0004	.0477	-.1813
3.06	-10.4	00.0	-.043	.0163	-.0220	-2.66	-.001	.0000	.0001	-.0025	.0185
	-6.4	00.0	-.012	.0097	-.0056	-1.20	-.001	.0000	.0000	.0050	-.0129
	-4.4	00.0	.000	.0087	.0033	-0.02	-.001	-.0001	.0000	.0085	-.0262
	-2.3	00.0	.009	.0087	.0130	1.00	-.001	-.0001	.0001	.0123	-.0409
	-0.3	00.0	.017	.0095	.0225	1.77	-.001	-.0001	.0000	.0163	-.0562
	1.6	00.0	.026	.0109	.0317	2.40	-.002	.0000	.0001	.0202	-.0703
	3.6	00.0	.034	.0131	.0408	2.59	-.001	.0000	.0001	.0241	-.0849
	7.6	00.0	.056	.0202	.0585	2.74	-.001	.0000	.0001	.0319	-.1159
	11.6	00.0	.083	.0315	.0745	2.63	-.002	-.0001	-.0001	.0393	-.1462
	14.4	00.0	.109	.0433	.0850	2.51	-.002	-.0001	.0000	.0444	-.1671
3.53	-10.5	00.0	-.045	.0169	-.0191	-2.67	-.001	-.0001	.0001	-.0018	.0161
	-6.5	00.0	-.014	.0103	-.0044	-1.36	.000	-.0001	.0001	.0049	-.0114
	-4.4	00.0	-.004	.0089	.0041	-0.40	.000	-.0001	.0001	.0083	-.0236
	-2.4	00.0	.006	.0087	.0126	0.73	.000	-.0001	.0001	.0119	-.0398
	-0.4	00.0	.016	.0092	.0210	1.76	-.001	.0000	.0002	.0154	-.0510
	1.5	00.0	.023	.0105	.0298	2.14	.000	.0000	.0002	.0191	-.0650
	3.5	00.0	.031	.0125	.0387	2.49	-.001	.0000	.0002	.0228	-.0784
	7.5	00.0	.051	.0190	.0552	2.68	-.001	.0000	.0002	.0299	-.1057
	11.6	00.0	.082	.0306	.0702	2.69	-.002	.0000	.0001	.0373	-.1348
	14.3	00.0	.107	.0423	.0809	2.54	-.002	.0000	.0001	.0425	-.1580

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0^\circ$ - Continued

(i) BC, $\delta = 20.0^\circ$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.4	00.0	-.026	.0161	-.0038	-1.60	-.001	-.0001	.0002	.0134	-.0348
	- 6.4	00.0	.003	.0125	.0142	0.27	-.001	-.0001	.0002	.0207	-.0672
	- 4.4	00.0	.013	.0131	.0235	1.01	-.002	.0000	.0003	.0246	-.0843
	- 2.3	00.0	.023	.0145	.0328	1.58	-.001	.0000	.0002	.0287	-.1020
	- 0.3	00.0	.032	.0164	.0420	1.93	-.001	.0000	.0001	.0326	-.1191
	1.6	00.0	.040	.0192	.0514	2.07	-.001	.0000	.0002	.0369	-.1381
	3.6	00.0	.047	.0224	.0602	2.09	-.002	.0000	.0003	.0408	-.1544
	7.7	00.0	.064	.0309	.0769	2.06	-.003	.0000	.0001	.0490	-.1888
	11.7	00.0	.086	.0434	.0935	1.99	-.003	.0000	.0000	.0572	-.2265
	14.4	00.0	.109	.0560	.1063	1.95	-.003	.0000	.0000	.0634	-.2593
3.05	-10.4	00.0	-.028	.0180	-.0025	-1.54	-.001	.0000	.0000	.0138	-.0324
	- 6.4	00.0	.000	.0142	.0131	0.04	-.002	.0000	.0002	.0202	-.0609
	- 4.4	00.0	.012	.0140	.0221	0.89	-.001	.0000	.0001	.0237	-.0771
	- 2.3	00.0	.022	.0150	.0307	1.46	-.001	.0000	.0002	.0272	-.0930
	- 0.3	00.0	.031	.0170	.0397	1.80	-.001	.0000	.0001	.0310	-.1095
	1.6	00.0	.037	.0194	.0484	1.94	-.001	.0000	.0001	.0348	-.1266
	3.6	00.0	.046	.0226	.0569	2.05	-.002	.0000	.0002	.0386	-.1422
	7.6	00.0	.063	.0308	.0733	2.04	-.002	.0000	.0001	.0468	-.1784
	11.7	00.0	.087	.0436	.0896	2.00	-.003	.0000	.0000	.0552	-.2168
	14.4	00.0	.110	.0563	.1024	1.95	-.002	.0000	-.0001	.0612	-.2486
3.53	-10.4	00.0	-.025	.0180	-.0011	-1.41	-.001	-.0001	-.0001	.0142	-.0310
	- 6.4	00.0	.002	.0142	.0130	0.17	-.001	-.0001	.0000	.0200	-.0565
	- 4.4	00.0	.012	.0142	.0211	0.86	-.002	-.0001	.0001	.0232	-.0703
	- 2.4	00.0	.023	.0150	.0292	1.52	-.001	-.0001	.0002	.0265	-.0856
	- 0.3	00.0	.031	.0167	.0377	1.83	-.001	.0000	.0002	.0300	-.1011
	1.6	00.0	.039	.0191	.0462	2.05	-.001	.0000	.0002	.0338	-.1178
	3.6	00.0	.047	.0222	.0545	2.10	-.001	.0000	.0002	.0377	-.1347
	7.6	00.0	.064	.0306	.0707	2.09	-.002	.0000	.0000	.0458	-.1701
	11.6	00.0	.090	.0441	.0877	2.05	-.002	.0000	.0000	.0540	-.2106
	14.3	00.0	.112	.0565	.0993	1.98	-.003	.0000	.0000	.0595	-.2384

TABLE V.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta = 0°$ - Concluded

(j) B

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.4	00.0	-.035	.0124	-.0182	-2.84	.000	.0001	.0002		
	- 6.4	00.0	-.014	.0068	-.0121	-2.08	-.001	.0001	.0002		
	- 4.3	00.0	-.008	.0053	-.0084	-1.46	-.001	.0001	.0002		
	- 2.4	00.0	-.004	.0048	-.0045	-0.73	.000	.0001	.0002		
	- 0.4	00.0	.001	.0045	-.0002	0.15	-.001	.0001	.0002		
	1.6	00.0	.004	.0050	.0040	0.77	.000	.0001	.0002		
	3.6	00.0	.008	.0058	.0080	1.41	.000	.0001	.0002		
	7.6	00.0	.022	.0083	.0153	2.60	-.001	.0001	.0003		
	11.6	00.0	.049	.0162	.0212	3.03	-.001	.0001	.0001		
	14.3	00.0	.071	.0242	.0278	2.92	.000	.0001	.0002		
3.06	-10.4	00.0	-.039	.0152	-.0170	-2.57	-.001	.0000	.0001		
	- 6.4	00.0	-.015	.0090	-.0114	-1.68	.000	.0000	.0000		
	- 4.4	00.0	-.009	.0079	-.0079	-1.19	-.001	.0000	.0001		
	- 2.3	00.0	-.004	.0070	-.0041	-0.56	.000	.0000	.0000		
	- 0.3	00.0	.000	.0063	.0000	0.01	.000	.0000	-.0001		
	1.6	00.0	.004	.0066	.0041	0.55	.000	.0000	.0002		
	3.6	00.0	.009	.0074	.0080	1.24	.000	.0001	.0001		
	7.6	00.0	.025	.0101	.0147	2.50	.000	.0001	.0001		
	11.6	00.0	.052	.0181	.0206	2.90	-.001	.0001	.0001		
	14.3	00.0	.070	.0252	.0269	2.79	.000	.0001	.0001		
3.53	-10.4	00.0	-.042	.0167	-.0165	-2.48	.000	.0000	.0001		
	- 6.4	00.0	-.019	.0103	-.0110	-1.87	.000	.0000	.0001		
	- 4.4	00.0	-.011	.0090	-.0078	-1.26	.000	.0000	.0001		
	- 2.4	00.0	-.007	.0081	-.0040	-0.84	.000	.0000	.0001		
	- 0.4	00.0	-.002	.0070	-.0005	-0.24	.000	.0000	.0001		
	1.5	00.0	.002	.0073	.0037	0.32	.000	.0000	.0001		
	3.5	00.0	.007	.0077	.0072	0.91	.000	.0000	.0002		
	7.6	00.0	.022	.0101	.0137	2.15	.000	.0001	.0003		
	11.6	00.0	.048	.0175	.0200	2.77	.000	.0001	.0002		
	14.3	00.0	.064	.0243	.0263	2.64	.000	.0001	.0002		

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5^{\circ}$

(a) BVC, $\delta = 0^{\circ}$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	- .071	.0222	- .0489	- 3.20	- .043	- .0062	.0086	- .0228	.0882
	- 6.4	4.9	- .041	.0125	- .0303	⌐ 3.26	- .040	- .0057	.0079	- .0139	.0543
	- 4.4	4.9	- .029	.0096	- .0199	- 3.01	- .039	- .0054	.0078	- .0095	.0369
	- 2.4	4.9	- .017	.0079	- .0090	- 2.19	- .038	- .0051	.0079	- .0046	.0186
	- 0.4	4.9	- .007	.0072	.0016	- 0.93	- .038	- .0048	.0078	- .0001	- .0001
	1.5	4.9	.003	.0069	.0116	0.47	- .037	- .0045	.0076	.0042	- .0170
	3.5	4.9	.015	.0078	.0221	1.94	- .037	- .0043	.0075	.0090	- .0356
	7.6	4.9	.041	.0129	.0426	3.19	- .035	- .0038	.0058	.0184	- .0716
	11.6	4.9	.075	.0232	.0596	3.25	- .031	- .0029	.0032	.0269	-.1047
	13.4	5.0	.093	.0298	.0666	3.12	- .031	- .0028	.0021	.0303	-.1185
3.05	- 10.5	4.9	- .070	.0213	- .0433	- 3.30	- .041	- .0050	.0065	- .0201	.0768
	- 6.4	4.9	- .040	.0120	- .0267	- 3.35	- .038	- .0046	.0059	- .0122	.0465
	- 4.4	4.9	- .027	.0091	- .0176	- 2.96	- .036	- .0044	.0057	- .0084	.0320
	- 2.4	4.9	- .017	.0074	- .0080	- 2.28	- .036	- .0044	.0058	- .0043	.0163
	- 0.4	4.9	- .006	.0068	.0012	- 0.86	- .035	- .0041	.0056	- .0001	.0006
	1.5	4.9	.004	.0067	.0105	0.54	- .035	- .0039	.0054	.0036	- .0147
	3.6	4.9	.015	.0076	.0199	1.99	- .036	- .0037	.0053	.0078	- .0305
	7.6	4.9	.041	.0123	.0376	3.35	- .035	- .0032	.0044	.0160	- .0606
	11.6	5.0	.075	.0225	.0530	3.35	- .031	- .0027	.0017	.0236	- .0905
	13.4	5.0	.092	.0291	.0599	3.17	- .029	- .0026	.0005	.0270	-.1040
3.53	- 10.5	5.0	- .067	.0217	- .0402	- 3.06	- .040	- .0043	.0051	- .0184	.0690
	- 6.5	5.0	- .038	.0128	- .0242	- 2.98	- .037	- .0039	.0046	- .0113	.0426
	- 4.5	5.0	- .026	.0099	- .0160	- 2.62	- .037	- .0038	.0045	- .0074	.0269
	- 2.5	5.0	- .015	.0083	- .0073	- 1.84	- .036	- .0038	.0045	- .0039	.0145
	- 0.5	5.0	- .006	.0076	.0014	- 0.76	- .036	- .0036	.0045	- .0001	.0007
	1.5	5.0	.004	.0070	.0095	0.58	- .035	- .0034	.0044	.0032	- .0126
	3.5	5.0	.014	.0080	.0186	1.71	- .035	- .0033	.0045	.0069	- .0258
	11.6	5.0	.072	.0217	.0493	3.33	- .031	- .0025	.0008	.0215	- .0811
	13.4	5.1	.089	.0283	.0565	3.13	- .029	- .0025	- .0001	.0247	- .0941

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(b) BVC, $\delta = 10.2°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	-.055	.0178	-.0208	- 3.10	-.048	-.0065	.0079	-.0035	.0221
	- 6.4	4.9	-.024	.0112	-.0020	- 2.15	-.042	-.0060	.0074	.0052	-.0132
	- 4.4	4.9	-.012	.0097	.0079	- 1.28	-.042	-.0057	.0075	.0094	-.0296
	- 2.4	4.9	-.001	.0095	.0178	- 0.14	-.042	-.0054	.0077	.0138	-.0466
	- 0.4	4.9	.010	.0100	.0276	0.96	-.041	-.0052	.0078	.0183	-.0642
	1.6	4.9	.021	.0114	.0364	1.86	-.041	-.0048	.0076	.0225	-.0799
	3.6	4.9	.032	.0136	.0454	2.38	-.040	-.0046	.0073	.0265	-.0951
	7.6	4.9	.055	.0209	.0640	2.65	-.034	-.0041	.0049	.0349	-.1278
	11.6	5.0	.086	.0325	.0796	2.64	-.029	-.0034	.0026	.0429	-.1606
	13.5	5.0	.103	.0402	.0862	2.55	-.028	-.0033	.0022	.0465	-.1759
3.05	- 10.4	4.9	-.054	.0178	-.0180	- 3.04	-.046	-.0054	.0058	-.0019	.0178
	- 6.4	4.9	-.025	.0115	-.0010	- 2.13	-.041	-.0050	.0054	.0055	-.0124
	- 4.4	4.9	-.013	.0101	.0075	- 1.31	-.040	-.0049	.0056	.0093	-.0275
	- 2.4	4.8	-.002	.0093	.0161	- 0.17	-.039	-.0047	.0056	.0128	-.0404
	- 0.3	4.8	.009	.0098	.0246	0.94	-.039	-.0044	.0054	.0167	-.0558
	1.5	4.8	.020	.0109	.0330	1.80	-.039	-.0042	.0054	.0206	-.0706
	3.6	4.9	.032	.0131	.0413	2.41	-.038	-.0040	.0051	.0242	-.0834
	7.6	4.9	.054	.0201	.0582	2.70	-.034	-.0036	.0036	.0319	-.1141
	11.6	4.9	.086	.0317	.0721	2.72	-.030	-.0030	.0018	.0393	-.1434
	13.5	4.9	.101	.0387	.0794	2.62	-.029	-.0029	.0014	.0428	-.1589
3.53	- 10.5	5.0	-.051	.0182	-.0165	- 2.80	-.042	-.0050	.0049	-.0011	.0135
	- 6.5	5.0	-.024	.0122	-.0005	- 1.92	-.037	-.0044	.0045	.0055	-.0130
	- 4.4	5.0	-.011	.0103	.0069	- 1.06	-.036	-.0043	.0045	.0088	-.0255
	- 2.4	5.0	.001	.0099	.0146	0.06	-.036	-.0042	.0047	.0122	-.0386
	- 0.4	5.0	.010	.0102	.0228	1.00	-.036	-.0041	.0047	.0155	-.0507
	1.5	5.0	.021	.0114	.0304	1.81	-.035	-.0039	.0047	.0190	-.0640
	3.5	5.0	.031	.0131	.0384	2.41	-.035	-.0036	.0047	.0225	-.0768
	7.6	5.0	.055	.0200	.0543	2.74	-.033	-.0032	.0035	.0298	-.1047
	11.6	5.0	.085	.0313	.0681	2.73	-.027	-.0026	.0013	.0370	-.1344
	13.4	5.1	.100	.0383	.0757	2.62	-.026	-.0026	.0010	.0404	-.1474

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 0°$ - Continued

(c) BVC, $\delta = 20.0°$

M	α, deg	β, deg	C_L	C_D	c_m	L/D	C_Y	c_{l_s}	c_{n_s}	C_{Z_c}	c_{h_c}
2.58	-10.4	4.9	-.040	.0216	.0017	-1.84	-.042	-.0067	.0069	.0141	-.0388
	-6.4	4.9	-.007	.0168	.0181	-0.41	-.043	-.0063	.0080	.0215	-.0718
	-4.4	4.9	.007	.0161	.0262	0.46	-.045	-.0061	.0086	.0250	-.0869
	-2.4	4.9	.019	.0170	.0350	1.11	-.046	-.0058	.0089	.0289	-.1049
	-0.3	4.9	.030	.0187	.0443	1.59	-.044	-.0054	.0088	.0329	-.1217
	1.6	4.9	.038	.0213	.0534	1.77	-.043	-.0050	.0087	.0368	-.1396
	3.6	4.9	.048	.0244	.0615	1.99	-.041	-.0048	.0087	.0403	-.1556
	7.6	4.9	.069	.0336	.0787	2.06	-.033	-.0042	.0050	.0479	-.1907
	11.7	5.0	.095	.0469	.0928	2.03	-.027	-.0037	.0039	.0551	-.2273
	13.5	5.0	.111	.0553	.1000	2.02	-.024	-.0035	.0038	.0587	-.2449
3.05	-10.4	4.9	-.038	.0218	.0020	-1.75	-.043	-.0056	.0054	.0140	-.0336
	-6.4	4.9	-.010	.0170	.0174	-0.60	-.041	-.0053	.0058	.0204	-.0621
	-4.3	4.9	.004	.0162	.0247	0.27	-.042	-.0052	.0066	.0240	-.0789
	-2.3	4.8	.016	.0166	.0331	0.95	-.043	-.0050	.0068	.0272	-.0932
	-0.3	4.8	.026	.0182	.0416	1.41	-.040	-.0047	.0062	.0309	-.1104
	1.6	4.8	.036	.0205	.0497	1.75	-.039	-.0043	.0061	.0346	-.1262
	3.6	4.9	.047	.0236	.0574	1.98	-.038	-.0041	.0060	.0380	-.1414
	7.6	4.9	.068	.0326	.0733	2.08	-.033	-.0037	.0038	.0455	-.1763
	11.7	4.9	.096	.0461	.0876	2.09	-.026	-.0031	.0030	.0529	-.2108
	13.5	4.9	.111	.0541	.0950	2.05	-.025	-.0029	.0027	.0562	-.2287
3.53	-10.4	5.0	-.037	.0206	.0013	-1.78	-.042	-.0052	.0045	.0142	-.0336
	-6.4	5.0	-.010	.0161	.0162	-0.62	-.040	-.0047	.0047	.0202	-.0591
	-4.4	5.0	.002	.0155	.0236	0.14	-.039	-.0046	.0049	.0232	-.0716
	-2.4	5.0	.014	.0160	.0310	0.89	-.039	-.0045	.0052	.0267	-.0869
	-0.4	5.0	.024	.0172	.0396	1.37	-.038	-.0042	.0049	.0302	-.1019
	1.5	5.0	.035	.0191	.0469	1.84	-.038	-.0040	.0048	.0337	-.1169
	3.5	5.0	.046	.0224	.0545	2.05	-.036	-.0038	.0047	.0374	-.1316
	7.6	5.0	.068	.0315	.0700	2.17	-.033	-.0034	.0035	.0455	-.1666
	11.6	5.0	.096	.0450	.0850	2.14	-.026	-.0028	.0023	.0534	-.2026
	13.4	5.1	.110	.0528	.0924	2.07	-.025	-.0025	.0018	.0573	-.2218

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(d) BV

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.4	4.9	-.045	.0163	-.0155	-2.74	-.048	-.0066	.0080		
	-6.4	4.9	-.023	.0100	-.0091	-2.32	-.041	-.0060	.0081		
	-4.4	4.9	-.017	.0082	-.0056	-2.03	-.039	-.0056	.0081		
	-2.4	4.9	-.012	.0070	-.0019	-1.72	-.038	-.0052	.0081		
	-0.4	4.9	-.007	.0064	.0022	-1.14	-.037	-.0048	.0078		
	1.6	4.9	-.001	.0063	.0057	-0.23	-.036	-.0044	.0075		
	3.6	4.9	.004	.0066	.0091	0.56	-.037	-.0041	.0072		
	7.6	4.9	.021	.0092	.0161	2.30	-.037	-.0035	.0059		
	11.6	5.0	.050	.0168	.0219	3.01	-.037	-.0033	.0031		
	13.4	5.0	.065	.0221	.0256	2.95	-.038	-.0033	.0018		
3.05	-10.4	4.9	-.047	.0164	-.0151	-2.85	-.046	-.0055	.0059		
	-6.4	4.9	-.025	.0099	-.0087	-2.56	-.040	-.0049	.0059		
	-4.3	4.9	-.017	.0080	-.0050	-2.17	-.037	-.0047	.0058		
	-2.3	4.9	-.012	.0069	-.0016	-1.69	-.036	-.0045	.0059		
	-0.3	4.9	-.006	.0062	.0022	-0.93	-.034	-.0042	.0056		
	1.6	4.9	.000	.0061	.0053	-0.02	-.034	-.0038	.0052		
	3.6	4.9	.006	.0063	.0089	0.99	-.035	-.0036	.0050		
	7.6	4.9	.025	.0092	.0151	2.67	-.036	-.0031	.0041		
	11.6	4.9	.053	.0166	.0214	3.15	-.038	-.0029	.0017		
	13.4	5.0	.065	.0217	.0248	2.98	-.038	-.0029	.0009		
3.53	-10.4	5.0	-.047	.0168	-.0146	-2.77	-.045	-.0048	.0045		
	-6.4	5.0	-.025	.0105	-.0080	-2.39	-.039	-.0042	.0045		
	-4.4	5.0	-.016	.0089	-.0050	-1.83	-.036	-.0039	.0043		
	-2.4	5.0	-.012	.0076	-.0014	-1.60	-.035	-.0038	.0044		
	-0.4	5.0	-.005	.0067	.0018	-0.71	-.035	-.0036	.0044		
	1.5	5.0	.001	.0066	.0049	0.11	-.033	-.0033	.0040		
	3.5	5.0	.007	.0070	.0084	1.01	-.034	-.0032	.0040		
	7.5	5.0	.025	.0099	.0144	2.55	-.036	-.0028	.0033		
	11.6	5.0	.051	.0170	.0211	3.00	-.037	-.0027	.0013		
	13.4	5.0	.064	.0219	.0241	2.91	-.038	-.0026	.0006		

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5°$ - Continued

(e) BC, $\delta = 0°$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.5	4.9	-.069	.0194	-.0509	-3.59	-.021	.0012	-.0047	-.0229	.0889
	- 6.4	4.9	-.039	.0101	-.0325	-3.86	-.017	.0009	-.0063	-.0140	.0546
	- 4.4	4.9	-.026	.0075	-.0222	-3.52	-.015	.0007	-.0068	-.0092	.0365
	- 2.4	4.9	-.015	.0059	-.0111	-2.55	-.015	.0004	-.0070	-.0047	.0189
	- 0.4	4.9	-.005	.0055	-.0004	-0.83	-.014	.0001	-.0071	.0000	.0000
	1.6	4.9	.005	.0055	.0101	0.98	-.015	-.0002	-.0069	.0044	-.0179
	3.6	4.9	.016	.0065	.0205	2.51	-.015	-.0005	-.0067	.0090	-.0355
	7.6	4.9	.043	.0120	.0418	3.53	-.018	-.0009	-.0059	.0185	-.0720
	11.6	5.0	.079	.0232	.0579	3.38	-.022	-.0011	-.0043	.0270	-.1045
	13.4	5.0	.096	.0301	.0652	3.18	-.023	-.0013	-.0041	.0306	-.1192
3.05	-10.4	4.9	-.067	.0186	-.0453	-3.60	-.022	.0012	-.0046	-.0199	.0768
	- 6.4	4.9	-.037	.0099	-.0291	-3.71	-.019	.0009	-.0059	-.0121	.0465
	- 4.4	4.9	-.025	.0074	-.0199	-3.40	-.017	.0007	-.0066	-.0082	.0317
	- 2.4	4.8	-.014	.0057	-.0103	-2.38	-.016	.0003	-.0069	-.0041	.0162
	- 0.4	4.8	-.003	.0052	-.0009	-0.54	-.016	.0001	-.0070	.0000	.0000
	1.5	4.8	.006	.0054	.0091	1.11	-.016	-.0002	-.0068	.0039	-.0149
	3.5	4.9	.017	.0065	.0186	2.67	-.016	-.0005	-.0066	.0082	-.0319
	7.6	4.9	.044	.0121	.0364	3.65	-.020	-.0009	-.0053	.0162	-.0616
	11.6	4.9	.079	.0228	.0517	3.46	-.022	-.0012	-.0047	.0238	-.0910
	13.4	4.9	.095	.0295	.0589	3.22	-.022	-.0015	-.0051	.0271	-.1042
3.53	-10.5	5.0	-.066	.0193	-.0418	-3.40	-.023	.0012	-.0048	-.0181	.0679
	- 6.4	4.9	-.036	.0108	-.0261	-3.33	-.020	.0008	-.0054	-.0109	.0412
	- 4.4	4.9	-.023	.0083	-.0179	-2.78	-.019	.0006	-.0059	-.0073	.0274
	- 2.4	4.9	-.014	.0069	-.0093	-1.97	-.018	.0003	-.0063	-.0035	.0129
	- 0.4	4.9	-.003	.0062	-.0006	-0.51	-.018	.0001	-.0064	.0000	.0000
	1.5	4.9	.007	.0065	.0081	1.14	-.018	-.0002	-.0063	.0035	-.0129
	3.5	4.9	.017	.0074	.0170	2.30	-.018	-.0004	-.0059	.0073	-.0265
	13.4	5.0	.090	.0289	.0554	3.13	-.022	-.0016	-.0054	.0248	-.0946

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5^\circ$ - Continued

(f) BC, $\delta = 10.0^\circ$

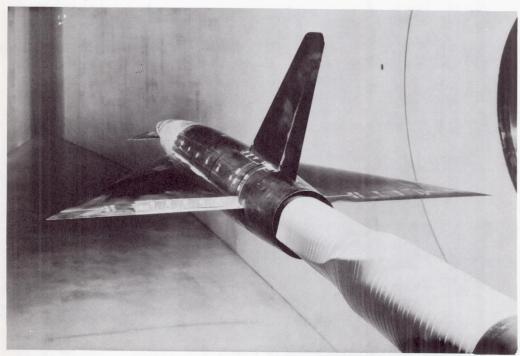| M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	- 10.5	4.9	-.048	.0138	-.0239	- 3.50	-.022	.0010	-.0057	-.0038	.0219
	- 6.4	4.9	-.016	.0080	-.0050	- 2.04	-.015	.0006	-.0072	.0049	-.0128
	- 4.4	4.9	-.005	.0071	.0046	- 0.65	-.014	.0003	-.0075	.0092	-.0293
	- 2.4	4.9	.008	.0070	.0144	1.12	-.014	.0001	-.0075	.0135	-.0464
	- 0.4	4.9	.018	.0080	.0241	2.29	-.014	-.0001	-.0077	.0179	-.0640
	1.6	4.9	.030	.0098	.0335	3.04	-.013	-.0005	-.0078	.0222	-.0796
	3.6	4.9	.040	.0123	.0433	3.23	-.014	-.0008	-.0078	.0264	-.0954
	7.6	4.9	.062	.0201	.0626	3.10	-.012	-.0013	-.0075	.0349	-.1285
	11.7	5.0	.094	.0331	.0780	2.83	-.015	-.0016	-.0061	.0427	-.1603
	13.5	5.0	.111	.0411	.0848	2.71	-.016	-.0017	-.0057	.0465	-.1765
3.06	- 10.4	4.9	-.049	.0150	-.0207	- 3.23	-.023	.0010	-.0057	-.0019	.0162
	- 6.4	4.9	-.017	.0094	-.0036	- 1.84	-.018	.0006	-.0068	.0055	-.0144
	- 4.4	4.9	-.007	.0083	.0047	- 0.80	-.016	.0003	-.0072	.0091	-.0273
	- 2.3	4.9	.005	.0082	.0131	0.62	-.016	.0001	-.0074	.0127	-.0419
	- 0.4	4.9	.015	.0088	.0220	1.73	-.016	-.0002	-.0074	.0164	-.0557
	1.6	4.9	.027	.0100	.0307	2.66	-.016	-.0005	-.0073	.0203	-.0708
	3.6	4.9	.038	.0126	.0392	3.01	-.015	-.0007	-.0072	.0242	-.0840
	7.6	4.9	.061	.0204	.0562	3.01	-.017	-.0012	-.0066	.0321	-.1159
	11.7	4.9	.094	.0329	.0705	2.85	-.018	-.0016	-.0058	.0395	-.1460
	13.5	5.0	.107	.0397	.0779	2.70	-.018	-.0016	-.0053	.0427	-.1595
3.53	- 10.4	5.0	-.049	.0151	-.0188	- 3.22	-.025	.0009	-.0056	-.0008	.0129
	- 6.5	4.9	-.021	.0098	-.0026	- 2.12	-.020	.0005	-.0062	.0060	-.0141
	- 4.4	4.9	-.009	.0086	.0051	- 1.05	-.019	.0002	-.0065	.0092	-.0265
	- 2.4	4.9	.002	.0083	.0132	0.28	-.018	.0000	-.0067	.0125	-.0389
	- 0.4	4.9	.014	.0087	.0208	1.56	-.017	-.0003	-.0067	.0161	-.0527
	1.5	4.9	.023	.0100	.0290	2.31	-.017	-.0005	-.0065	.0194	-.0650
	3.5	4.9	.034	.0123	.0373	2.78	-.018	-.0007	-.0062	.0232	-.0794
	7.5	5.0	.058	.0193	.0530	3.00	-.019	-.0011	-.0056	.0301	-.1058
	11.6	5.0	.087	.0309	.0675	2.80	-.018	-.0014	-.0051	.0374	-.1353
	13.4	5.0	.103	.0384	.0747	2.67	-.017	-.0016	-.0051	.0408	-.1496

TABLE VI.- AERODYNAMIC CHARACTERISTICS OF WING-OFF CONFIGURATIONS AT $\beta \approx 5^\circ$ - Concluded

(g) BC, $\delta = 20.0^\circ$

M	α, deg	β, deg	C_L	C_D	C_m	L/D	C_Y	C_{l_s}	C_{n_s}	C_{Z_c}	C_{h_c}
2.58	-10.4	4.9	-.036	.0181	-.0016	-1.98	-.017	.0011	-.0074	.0140	-.0378
	-6.4	4.9	-.002	.0139	.0149	-0.16	-.017	.0006	-.0075	.0215	-.0708
	-4.3	4.9	.013	.0136	.0226	0.98	-.018	.0003	-.0071	.0254	-.0872
	-2.3	4.9	.025	.0147	.0314	1.70	-.018	.0001	-.0073	.0294	-.1050
	-0.3	4.9	.035	.0167	.0408	2.10	-.016	-.0002	-.0076	.0332	-.1213
	1.6	4.9	.043	.0196	.0505	2.20	-.015	-.0005	-.0078	.0374	-.1388
	3.6	4.9	.054	.0231	.0592	2.33	-.014	-.0007	-.0078	.0415	-.1565
	7.7	4.9	.076	.0330	.0767	2.29	-.011	-.0015	-.0088	.0496	-.1912
	11.7	5.0	.099	.0465	.0916	2.14	-.010	-.0018	-.0075	.0576	-.2278
	13.5	5.0	.116	.0555	.0988	2.10	-.009	-.0018	-.0066	.0616	-.2474
3.05	-10.4	4.9	-.035	.0186	-.0010	-1.89	-.022	.0009	-.0065	.0143	-.0353
	-6.4	4.9	-.006	.0143	.0144	-0.45	-.019	.0005	-.0070	.0207	-.0632
	-4.3	4.9	.009	.0139	.0215	0.63	-.019	.0002	-.0068	.0243	-.0800
	-2.3	4.9	.020	.0145	.0299	1.40	-.018	.0000	-.0070	.0276	-.0933
	-0.3	4.9	.030	.0163	.0388	1.81	-.017	-.0003	-.0074	.0312	-.1090
	1.6	4.9	.037	.0187	.0472	1.99	-.017	-.0005	-.0073	.0351	-.1262
	3.6	4.9	.050	.0219	.0554	2.26	-.016	-.0008	-.0073	.0388	-.1410
	7.7	4.9	.069	.0312	.0715	2.22	-.015	-.0013	-.0077	.0466	-.1750
	11.7	5.0	.100	.0458	.0861	2.18	-.014	-.0016	-.0065	.0547	-.2124
	13.5	5.0	.113	.0539	.0936	2.11	-.013	-.0015	-.0055	.0583	-.2300
3.53	-10.4	5.0	-.032	.0178	-.0009	-1.80	-.024	.0007	-.0060	.0143	-.0334
	-6.4	4.9	-.005	.0141	.0139	-0.35	-.021	.0004	-.0062	.0202	-.0591
	-4.4	4.9	.008	.0137	.0210	0.58	-.021	.0002	-.0064	.0235	-.0725
	-2.4	4.9	.020	.0143	.0284	1.40	-.020	-.0001	-.0065	.0268	-.0866
	-0.4	4.9	.029	.0160	.0373	1.78	-.019	-.0003	-.0067	.0304	-.1021
	1.6	4.9	.039	.0185	.0452	2.09	-.019	-.0005	-.0066	.0342	-.1186
	3.6	4.9	.049	.0219	.0532	2.25	-.018	-.0007	-.0065	.0379	-.1335
	7.6	5.0	.073	.0314	.0686	2.31	-.017	-.0011	-.0065	.0456	-.1677
	11.6	5.0	.100	.0456	.0835	2.20	-.016	-.0014	-.0054	.0536	-.2046
	13.4	5.0	.114	.0540	.0916	2.11	-.016	-.0014	-.0049	.0575	-.2240

(a) Three-quarter front view of model.   A-23377
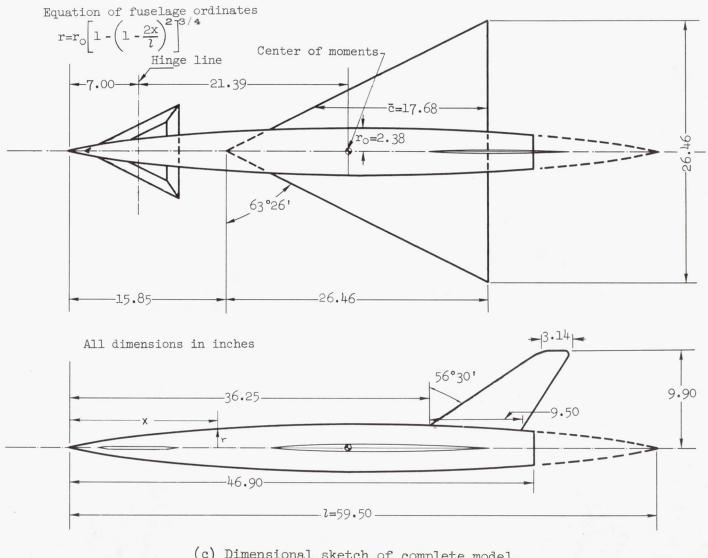
(b) Three-quarter rear view of model.   A-23378
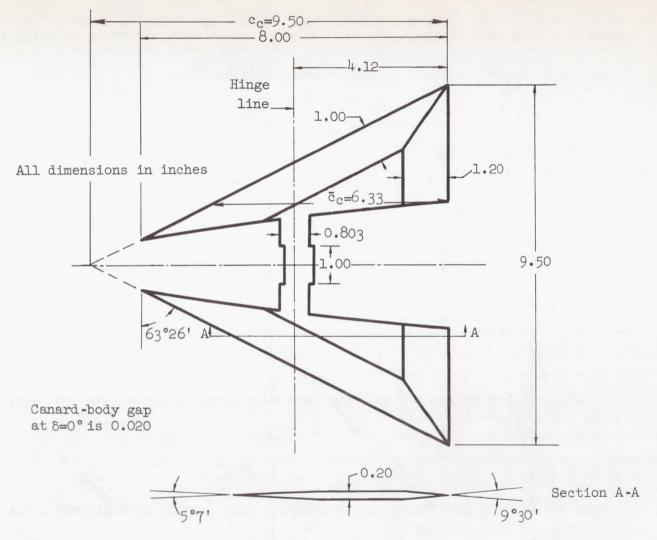
Figure 1.- Model details and dimensions.

Equation of fuselage ordinates

$$r = r_0 \left[1 - \left(1 - \frac{2x}{l}\right)^2 \right]^{3/4}$$

Hinge line

Center of moments

7.00

21.39

$\bar{c} = 17.68$

$r_0 = 2.38$

26.46

63°26'

15.85

26.46

All dimensions in inches

3.14

36.25

56°30'

9.90

x

r

9.50

46.90

$l = 59.50$

(c) Dimensional sketch of complete model.

Figure 1.- Continued.

All dimensions in inches

Canard-body gap
at $\delta = 0°$ is 0.020

(d) Details of canard surface.

Figure 1.- Concluded.

(a) M = 2.58
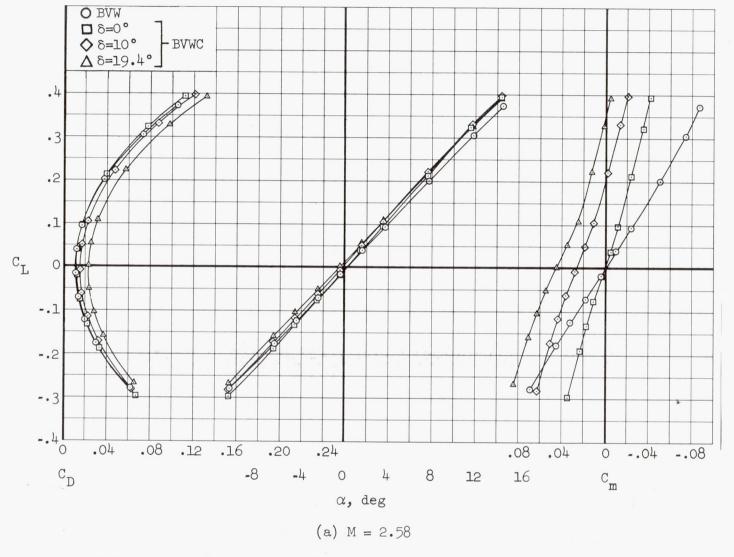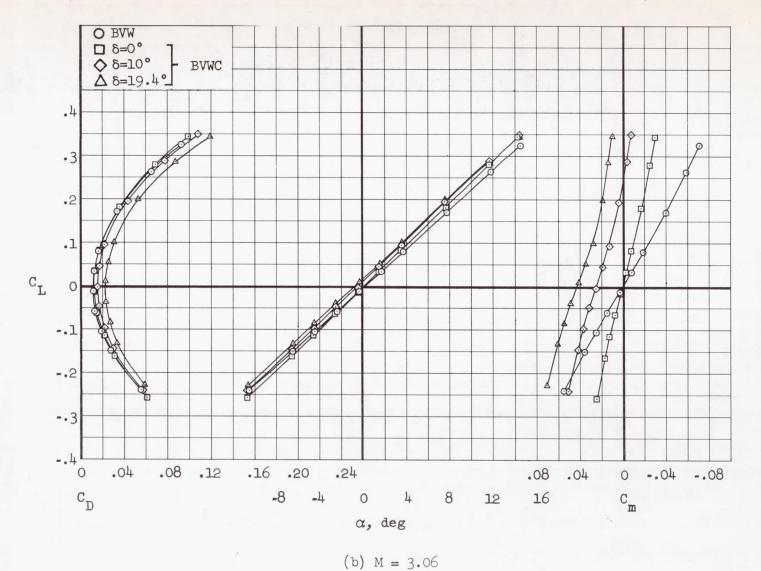
Figure 2.- Lift, drag, and pitching-moment characteristics with the canard on at constant deflection angles and with the canard off.

(b) M = 3.06

Figure 2.- Continued.

(c) M = 3.53
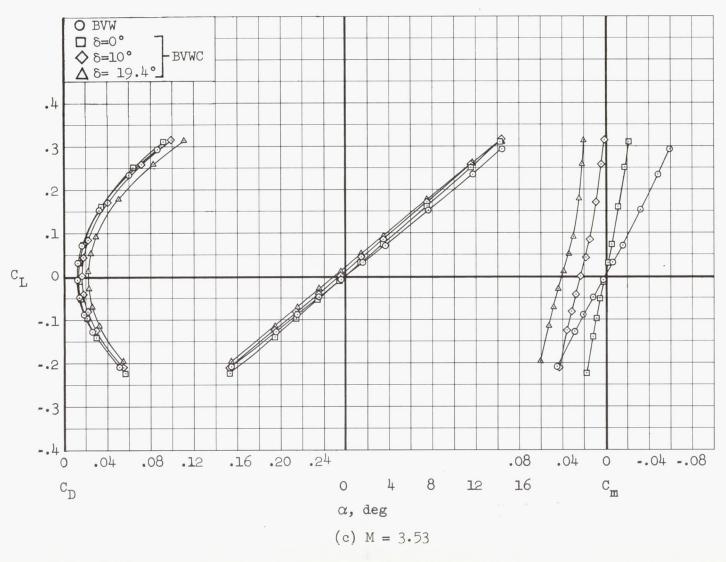
Figure 2.- Concluded.

(a) M = 2.58
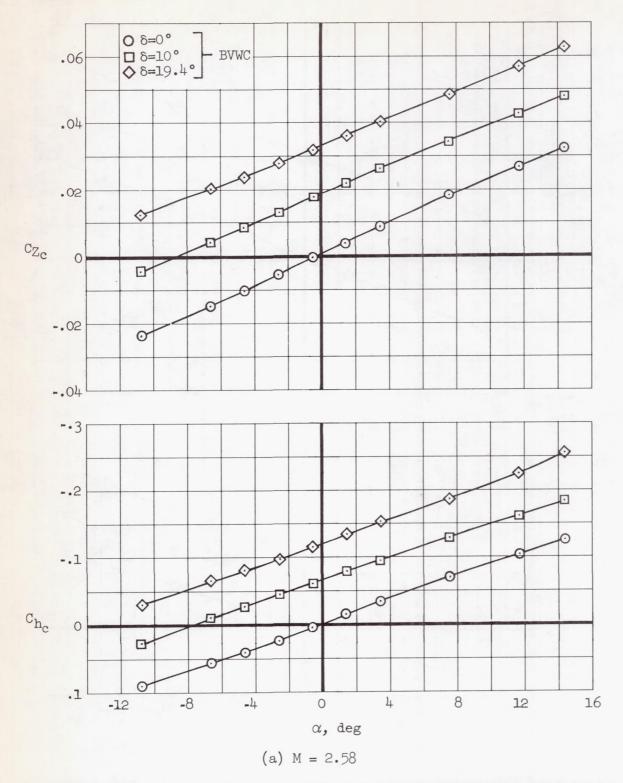
Figure 3.- Variation of canard normal-force and hinge-moment coefficients
as a function of angle of attack at constant deflection angles.

(b) M = 3.06
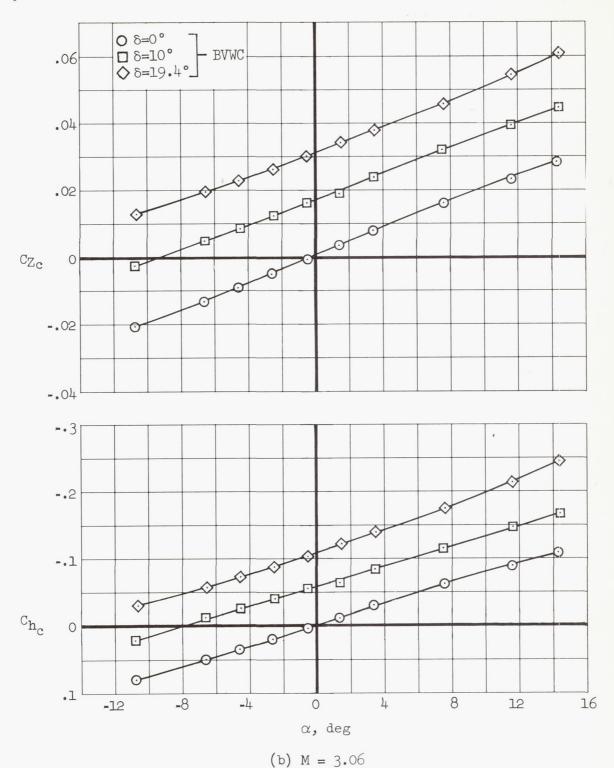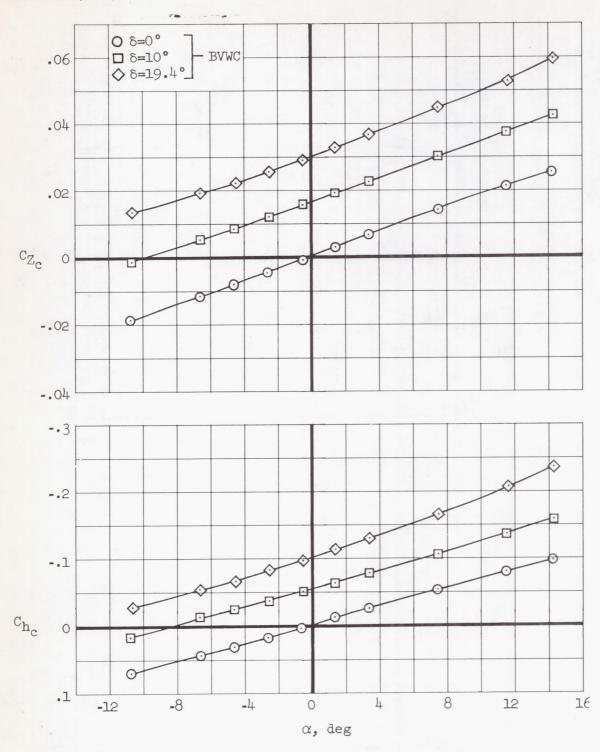
Figure 3.- Continued.

(c) M = 3.53

Figure 3.- Concluded.
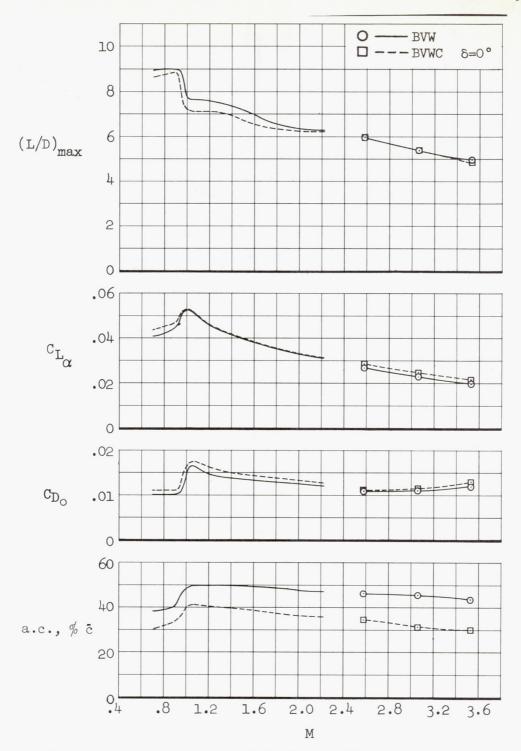
Figure 4.- Variation of maximum lift-drag ratios, lift-curve slope, minimum drag coefficients, and aerodynamic centers as a function of Mach number with the canard on and off. (Mach number 0.70 to 2.22 data obtained from ref. 1.)

(a) M = 2.58
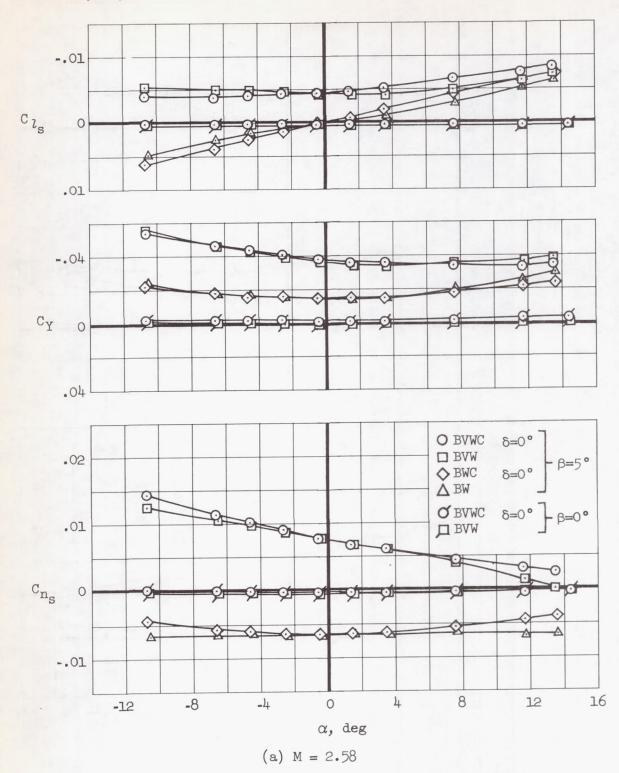
Figure 5.- The effect of configuration change on the lateral-directional
stability characteristics as a function of angle of attack at constant
sideslip angles.

(b) M = 3.06
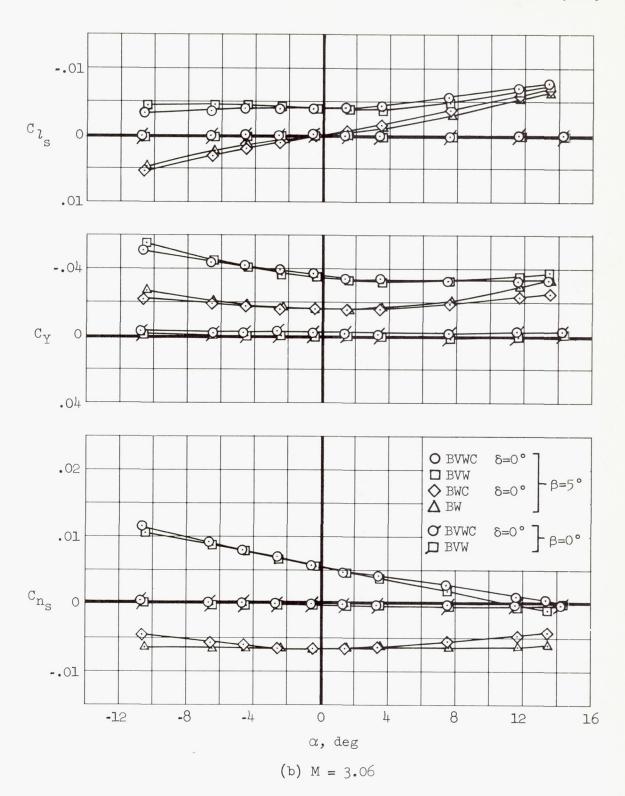
Figure 5.- Continued.

(c) M = 3.53
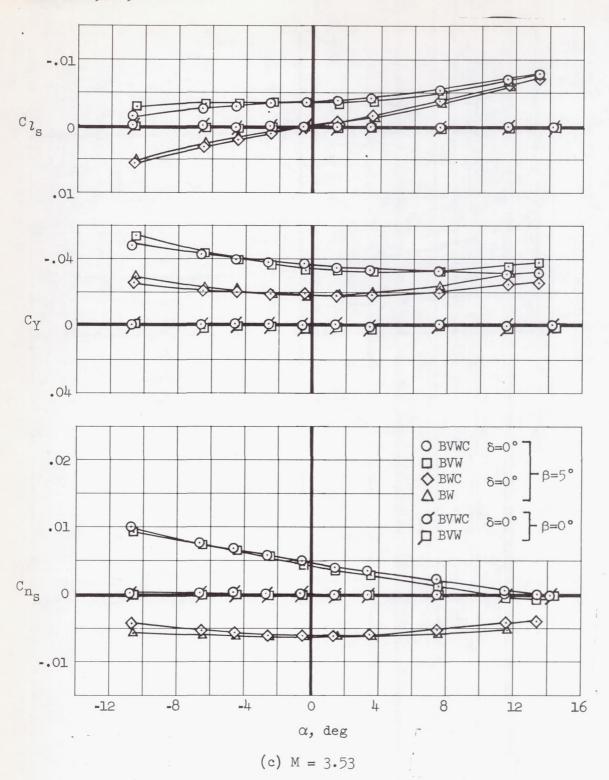
Figure 5.- Concluded.

(a) M = 2.58
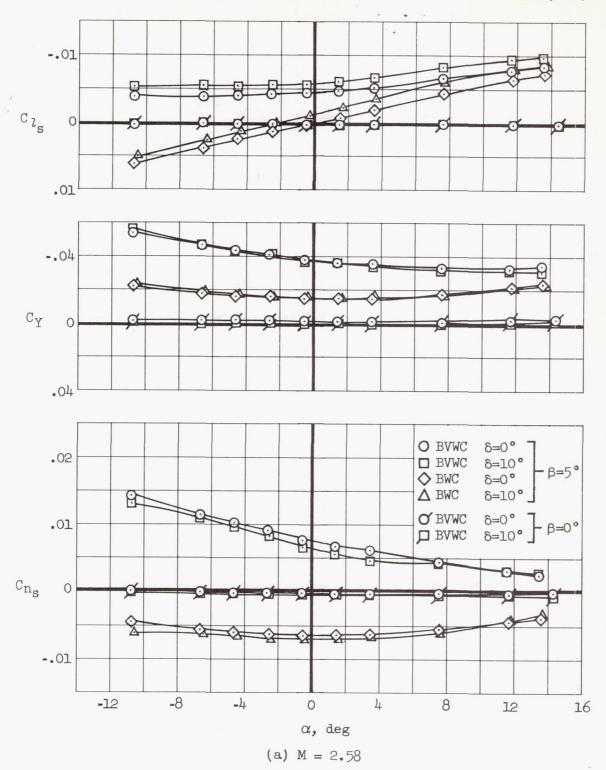
Figure 6.- The effect of canard deflection on the lateral-directional characteristics with the vertical tail on and off as a function of angle of attack at constant sideslip angles.

(b) M = 3.06
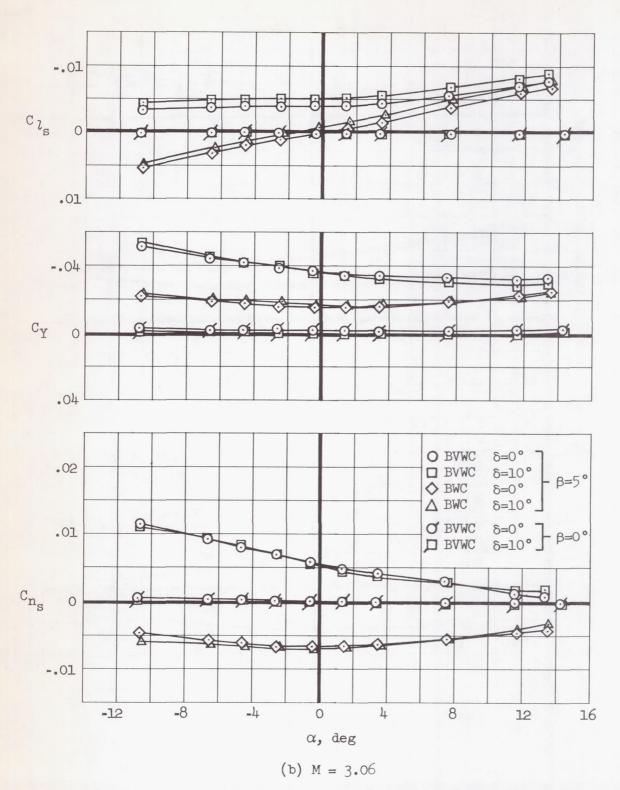
Figure 6.- Continued.

(c) M = 3.53
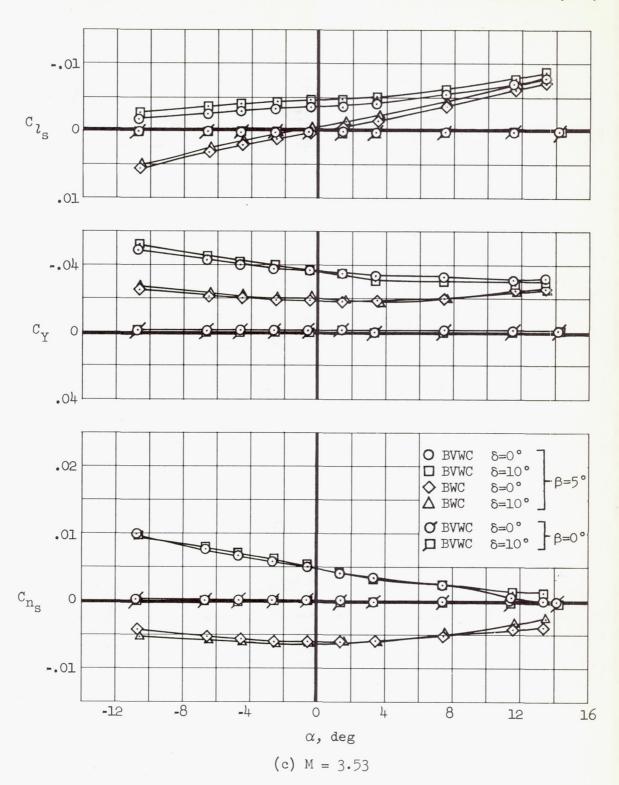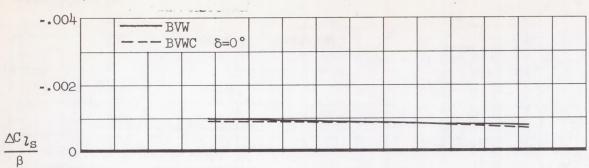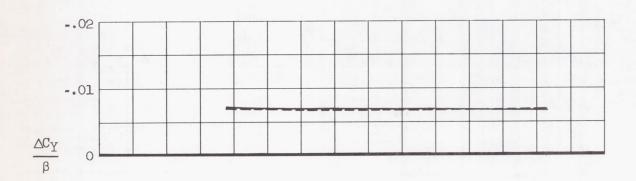
Figure 6.- Concluded.

(a) $\alpha = 0^\circ$
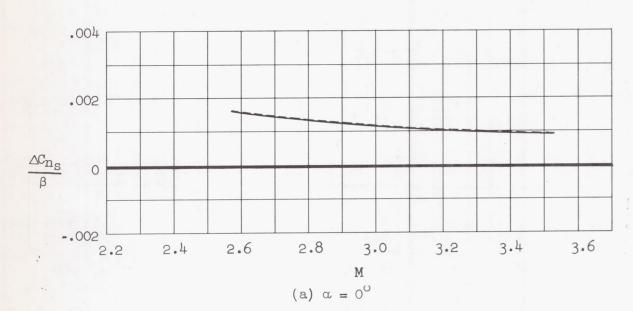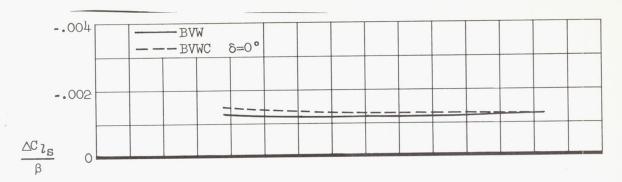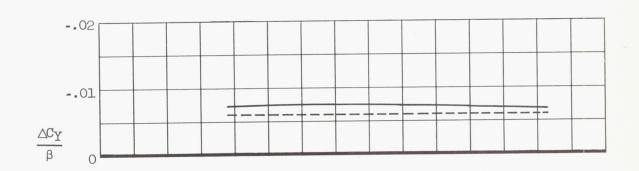
Figure 7.- Variation of $\Delta C_{l_S}/\beta$, $\Delta C_Y/\beta$, $\Delta C_{n_S}/\beta$ as a function of Mach number at constant angle of attack with the canard on and off, and with the vertical tail on.
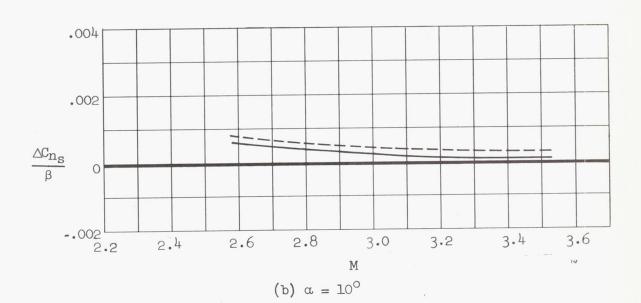
(b) $\alpha = 10^{\circ}$

Figure 7.- Concluded.